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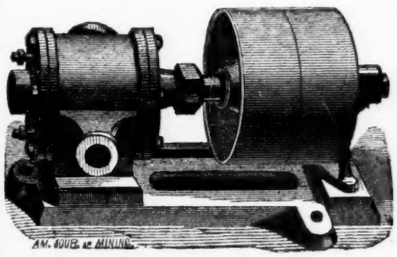
## ROTARY PUMPS.

Amongst the earliest improvements of machines we find efforts made to change rectilinear and reciprocating motion into circulating and continuous. To this important substitution we may attribute all those great advantages which are produced now by revolving mechanism—not the least important of which are some wonderful improvements made in pumps. The common water pump entails in its use a considerable loss of power, by the inertia and friction of the piston, and by constantly bringing all the water in the cylinder and suction pipe into an alternate state of rest and motion. To obviate these defects and to produce a continuous stream of water, the rotary pump was invented, and some of the greatest engineers of the world as Watt, Cartwright, and Sérviere have directed their attention to the improvement of this machine. Notwithstanding all these efforts, rotary pumps have hitherto been regarded as too complex, and too easily put out of order. As theoretically they are among the best pumps made, there can be no question of their value if manufactured so as to remove these defects. This Messrs. W. & R. Foster of 5 Adams street, Brooklyn, claim they have done. They manufacture a Compensating Rotary Pump Fig. 1, which can be used in raising oil, water, syrup and other fluids. In principle it mainly agrees with the rotary pump, but the cylinder is bored in such a form that the blades or buckets are always in contact with its periphery, and compensation is made for wear by springs in the end of the buckets, and by an adjustable plate attached in a simple manner to the back head of the pumps. This they maintain prevents any ill effects from the wear by friction of the blades. The pump is of an exceedingly simple, compact and strong construction. Unlike most other pumps—rotary or centrifugal—it has no angles, cams, or other internal machinery to get out of order or consume power. It runs equally well either way. It produces a continuous stream, and may be used with special advantage in raising syrup, oil, or any thick substance as "mash," since it is not liable to get choked up. It can also be used as a blower, Fig. 2, for "agitating" oil in the process of refinement. A small degree of power is requisite to set it going. The Messrs. Foster inform us that the pump and blower are now in use in many of the principle manufactories of the States, where a first-class article is required, and we have seen many letters speaking in the highest terms of these machines.

## The Glacial Period.

*Galignani* states that M. Babinet recently delivered an interesting lecture on the causes of the glacial period, which some geologists maintain to have existed many thousand years ago, while others equally eminent refuse to admit this theory. The opinion of the former is founded on the traces left on rocks, and, still more on what are called erratic blocks—that is enormous solitary blocks of stone found in plains where no similar rocks exist. Thus a block of granite in a granite region creates no surprise; but if it be found in a region where no granite is to be met with for miles around, the question naturally arises, how did it get there? The theory by which this phenomenon is attempted to be explained, and certainly with great plausibility, is the following: At a certain period of our earth's existence its whole surface was nearly covered with ice, and the blocks of stone detached from the mountains by storms and other convulsions lay on large sheets of ice, which, as this glacial period gradually wore away, broke up and were floated to great distances, until at length, in melting away, they deposited their blocks of stone on the bare ground. There are other arguments besides in favor of the glacial period, which we must pass over in silence in order to arrive at the main question treated by M. Babinet, viz.: Will the glacial period return, and must it return at stated times, destroying life on our globe for a few thousand years?



FOSTER'S EXCELSIOR PUMP.—Fig. 1.

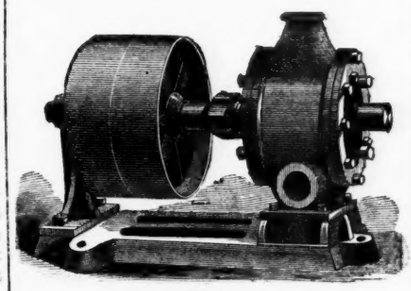


Fig. 2.

To answer this question M. Babinet has recourse to the well-ascertained fact that our sun moves through space towards some point existing in the constellation of Hercules. It is, therefore, a planet belonging to a system, the center or sun of which is too distant for us to descry. The planets of our solar system are but the satellites of our sun, which most probably describe an ellipse around its principal sun, but an ellipse thousands of times larger than our earth's orbit, and, consequently, thousands of years must elapse before our sun, after describing it, returns to its starting point. Now, as our seasons depend upon the distance of our earth from our sun, it is highly probable that the latter, in running its course round its sun, will produce seasons on a larger scale; it will get colder at one point than it is at another, and the cooling of our sun will occasion intense cold, that is, a glacial period on our globe, and conversely, at the point where the temperature of our sun will increase, our globe must experience a torrid period.

## Iron Smelting In France.

The furnaces are square in external plane, which is a more usual form abroad than in England. They are 48 feet high, 16 feet wide at the boshes, and 11 feet at the throat. The air is delivered at each of the tuyeres at a temperature of 400° Centigrade. The gases are taken off effectually from all. Some of the older ones are closed with a lid, raised by a counterpoise, but the cup and cone plan has been adopted in most instances. In all, the sheet iron tubes of material come over the mouth of the furnace and drop their contents in. The Mazenay ore requires no flux, as it contains abundant carbonate of lime, and the ordinary charges, when working with it alone, are 1,700 lbs. of coke to 5,000 lbs. of ore. The mixtures and management of the ores for the higher brands of iron are various. Some systems which have lately been elaborated are undoubtedly valuable to the owners of Creusot, though they could not benefit other forgemasters who have not the same varieties of mineral to deal with. The tapping of these furnaces takes place every eight hours, when about eight tons are run from each. The slag is run in a thin sheet on the floor, and then broken up and loaded in the railway wagons by hand, which is a defective arrangement compared with nearly all others in the works. The gases are utilized to the utmost. They heat the blast and supply the boilers of the blast-engines, and there is plenty to spare for sundry other boilers in the foundry and engine shops; and it is expected that all the engines in the machine shops will be driven by steam thus raised, including some new boilers now in contemplation to replace others of old construction.—*The Engineer.*

## Manufacturing and Remelting Iron or Steel.

Mr. Joseph Stenton has introduced to the public certain "improvements in the manufacture and remelting of iron or steel," the object of which is to change the character of iron whilst in a fluid state from that of ordinary cast iron to a metal more or less either hard or malleable. This object is effected by introducing or forcing into the blast furnace or cupola, with the blast of air, materials such as spiegel eisen, titanic or other iron ores, manganese clay, lime, limestone, chloride of calcium, pot or pearl ash, potassium, soda, salt, salammoniac, or other chemical substance. These materials, or any of them, in a pulverized state are placed in a hopper or vessel situated above the blast pipe, from which by suitable feeding apparatus the necessary quantities are introduced to the blast pipe, with or without the addition of pulverised carbonaceous matters. These pulverized materials are carried into the furnace by means of the blast in any desired quantity, according to the quality of iron or steel it is desired to produce, and depending in some measure upon the nature of the iron to be operated upon. Under some circumstances it will be found advantageous to use coal tar or other hydrocarbon for the purpose of imparting carbon to the iron. The coal tar or other hydrocarbon is introduced by means of the blast pipe which carries it into the furnace by the same means as the pulverized materials before enumerated.—*Colliery Guardian.*

## Smelting in Chihuahua.

From a mine in Parral the ore is taken by Indians, who then break it up into pieces about the size of a walnut. The fragments, mixed with litharge, are thrown into furnaces, where they are melted. After

several hours it is allowed to run off. The result is called "queta," and is a cake of silver and lead, for the metal is not yet pure. Another of this is made, called "placha," which is thrown into a second furnace. After six hours melting the pure "plata" or silver runs out free from all extraneous matter.

### Bastier's Patent Chain Pump.

As Bastier's chain pump is exciting considerable interest among miners in England and elsewhere, and an order is already on hand for San Francisco, we give a description, from which will be seen its simplicity and how easily it may be kept in repair. It consists of a tube, having a mouth-piece at the lower end in the shape of a funnel or bell; above this is a contracted tube, enameled inside with glass, ten feet in height, and of a diameter about three-sixteenths of an inch smaller than the succeeding tube which fits above it, this latter tube being fifty yards in height; then comes another contracted tube of ten feet, succeeded by a second tube of fifty yards, and so on to the top of the well, where is a cast iron frame, bearing a shaft on which is a pulley connected by a driving wheel with the engine. Over this pulley is an endless chain, furnished with India rubber discs at intervals of about three feet three inches, the groove of the pulley being cast with openings for each link of the chain to fall into; on its outer rim there are gaps into which the discs fit. This chain, passing over the pulley, goes down the open shaft, over a roller at the bottom, and up through the tube. When the pulley at the top is set in motion the discs pass through the mouthpiece and contracted tube, pressing against the latter so as to be air and water-tight. They thus create a vacuum, and the pressure of the atmosphere raises the water fully five fathoms in the tube. This action goes on continuously as the chain circulates and the water is delivered at the top of the pump, or at any part of the ascent at which it may be required, or a certain quantity at one part of the ascent, and the remainder at the other. As the chain is evenly balanced on the pulley, it will be seen that there is no force to overcome but the actual weight of the water and the slight friction of the discs against the interior of the tube. This latter pressure can be regulated by keys to any desirable extent. It is urged that this pump can do more work at greater depths, with less risk of accident and more economically, than any other description of pump now in use. The first of the kind was fixed about five years ago at the Wheal Concord mine, The shaft was three hundred and fifty feet, diameter of pump inside five inches, circumference of wheel thirteen feet, speed per minute thirty-two revolutions quantity of water lifted per minute three hundred and twenty gallons. The next referred to was put up at Messrs. W. Berger & Co.'s, Bromley le Bow, London. Up to 1862 the water was pumped by two ordinary pumps, from the best makers, and it was found that the engine was not sufficiently powerful to do all the work, and the engineer advised them to put in one of these pumps rather than to buy a new engine. This pump has been at work two years without any repair. It raises more water than is required, and with so much ease that the engineman scarcely perceives the fact of the pump being taken off from the engine, and the fireman cannot tell when it is off or on. It has now been adopted at the New River Company's works at Hoddesdon. The diameter of the tube is fifteen inches, of the contracted part fourteen inches, and each revolution of the chain pulley raises rather more than thirteen feet of chain; consequently, at forty revolutions per minute, the speed of the discs would be five hundred and twenty-five feet, raising nearly three thousand gallons of water per minute. The pump, it is said, works with admirable smoothness and ease.

### The Undiscovered Country.

Could we but know
The land that ends our dark, uncertain travel,
Where lie those happier hills and meadows low—
Ah, if beyond the spirit's inmost cavil,
Aught of that country could we surely know.
Who would not go?

Might we but hear
The lowering angels' high imagined chorus,
Or catch, betimes, with wakeful eyes and clear,
One radiant vista of the realm before us—
With one rapt moment given to see and hear,
Ah, who would fear?

Were we quite sure
To find the peerless friend who left us lonely,
Or there by some celestial streams us pure,
To gaze in eyes that here were lovely only—
This weary mortal coil were we quite sure,
Who could endure?

☞ At a church collection for missions the preacher said: "My Christian brethren, let us caution those who put in buttons not to break off the eyes; it spoils them for use, and they will not pass among the heathen for coins."

☞ Hans.—Ven dey jokes in his neck till he's plack in his face, vy do dey call garroting him? Heinrich.—Dey calls it garroting pecaush dey stopsh de plood from running in his garroted artery.

# Mining Summary.

## GOLD AND SILVER.

## Nevada.

**The Comstock.**—The Legislature of Nevada recently adopted the following important preamble and resolution:

*Whereas*, The State of Nevada contains within her borders a silver vein called the Comstock lode; and whereas, a deep drainage and exploring tunnel leading into said lode is necessary to its permanent yield of the precious metals; and whereas, the character of said lode is now demonstrated to be such as to give ample security to the capital necessary to be advanced for its construction; and whereas, the following facts in connection with the foregoing are of weighty consideration; that the mines of said lode have been worked for seven years past, and during this time have produced $64,000,000; that the present annual yield is $16,000,000; an amount equal to the total annual production of the Republic of Mexico; that the expenses of working these mines so rapidly increase with the increased depth that the $16,000,000 for the last year were realized at a cost of $15,500,000; and, at the present ratio of cost to production, their revenues would, in a few years, be wholly absorbed and the mines practically abandoned; that the causes of increased cost are, amongst others, the accumulation of water in the bottom of the mines, bad ventilation, and the increase of the heat with the depth; and that, now having reached a depth of 800 feet, this combination of causes will prevent their being worked profitably, on the present plan, below 1,200 feet; that the Comstock lode is conveniently placed for deep drainage, being situated on the side of a mountain which declines into a valley, from which a horizontal adit or tunnel, four miles long, can be constructed, which will cut the mines at a depth of 2,000 feet: that this tunnel once constructed, these mines can be profitably worked to a depth of 3,000 feet, and, by means of it, at least $1,000,000,000 of treasure will be secured; that the State of Nevada cannot give material aid to this work, by reason that its State debt already exceeds the constitutional limit of $300,000; that the mining companies, while producing large amounts of bullion and distributing it into the channels of trade and commerce, have, under the existing circumstances but a trifling surplus in profits, and not equal, without aid, to such an undertaking; that the taxable property of the United States has been more than doubled within the last eighteen years, mainly by the great addition to the precious metals, and that the addition of $1,000,000,000 would be an increase, to that extent, of the public resources, and virtually a reduction to a large extent of the public debt; that the United States contain, by estimation, 1,000,000 square miles of mineral land, whose chief value is to be found at great distances from the surface, and what is now wanting to bring private enterprise to the aid of deep mining, and thus develop incalculable wealth, is a practical proof, upon such a scale as the proposed tunnel would furnish, that our mines are continuous to the lowest levels at which drainage can be secured; that in all European mining countries the aid of the Government is given on broad financial considerations, to enterprises of this and the like character; that the magnitude of the proposed work, and the results to flow from its completion, as favorably affecting great financial questions, justly assign to it a national ground—a fact already recognized by the statesmen of the last Congress; therefore,

*Resolved*, That our Senators be instructed and our Representatives requested to use their best endeavors to obtain from Congress such material aid as will secure the speedy construction of the deep drainage and mining tunnel, known as the Sutro Tunnel.

The Committee, in recommending the passage of the above, made a report, from which the following interesting passages are taken: "Quartz lodes are the true source of the precious metals; to them must we look for the future supply, and any theory which tends to develop that interest should be looked upon by the legislators of the country as an all-important benefit to the nation. What is required to thoroughly develop that interest, and to induce private capital hereafter to embark largely in mining pursuits, is a practical and positive demonstration of the continuity of mineral lodes in depth, and no work will prove that proposition more thoroughly and satisfactorily than the proposed Sutro Tunnel to the Comstock lode. This tunnel, starting near the borders of Carson River, a distance of four miles, will cut the Comstock lode at a depth of 2,000 feet, while if continued a short distance it will reach under the summit of Mount Davidson at a depth of 3,500 feet. By means of the tunnel the mines can be worked at least one thousand feet below its level, thus demonstrating the continuance of the Comstock lode to a depth of three thousand feet, a greater depth than has ever yet been reached in any vein in the world. The bearing this work will exercise upon the future of the mining interests of the United States cannot be too highly appreciated; capital will be invested in enterprises of the like character where no confidence exists now; millions of treasure will see the light which now lie buried deeply in the bowels of our mountain ranges. The immediate and direct result from this work will be the developments made on the Comstock lode. This great lode was discovered in the year 1859, and has yielded, thus far, $64,000,000 in silver and gold, chiefly the former. The regular annual yield now is $16,000,000. If we compare this lode with other great mineral lodes, we find that none were ever worked in the Old World of equal or approaching magnitude. The American continent has produced three similar mines—the great Potosi Mine of Bolivia, which yielded twelve hundred millions; the Vita Madre, of Guanajuato, eight hundred millions, and the Vita Grande, of Zacatecas, six hundred and fifty millions—the latter two in Mexico. Competent geologists assert that the Comstock is a larger, more regular and permanent vein than either of the others named. What can we expect to be its yield, with the proposed tunnel once completed, enabling the miner to explore the same to a depth of three thousand feet, with the modern improved appliances for mining and the enterprise and energy of the American artisan to guide the operations? If we estimate its yield after the proposed tunnel is completed at thirty millions per annum, we will have, in thirty years, the enormous yield of nine hundred millions of dollars; and this may be considered a moderate estimate. Without the projected tunnel this vast and important property, which directly and indirectly gives employment to 100,000 people, will, after the lapse of a few years, have to be abandoned, for reasons which are at once apparent and conclusive. The yield of these mines for the year ending December 31st, 1866, has been $16,000,000, which was procured at a cost to the mining companies of $15,500,000—leaving the paltry profit of $500,000.

This extraordinary result is due to various causes, prominent among which are the difficulty of removing the water from the mines, the difficulty of ventilation, the increase of heat in going downwards, and the expenses of transportation. These mines are situated on the side of a mountain, and are entered by perpendicular shafts, of which there are over 40; these have reached a depth of from 500 to 900 feet, and on each a steam engine is placed, which propels pumps, and at the same time hoists out the ore and debris. The cost of fuel at Virginia City, where these shafts are located, is sixteen dollars per cord in gold, and the consumption of fuel alone is so great that this item by itself absorbs a large share of the profits, and the expenditure increases for every foot of descent. These engines are kept in motion day and night, for, were they allowed to stop, the mine would fill with water. Another serious obstacle, as depth increases, is the difficulty of keeping the miners supplied with a sufficiency of fresh air to furnish the oxygen required for respiration. The increase of heat, which amounts to one degree of Fahrenheit for every sixty feet in depth, prevents the miner from doing the same amount of work as if he were employed in a healthy atmosphere. The pecuniary loss from this source is very large, considering that 3,000 miners are employed at an average of $3 50 in gold per day of eight working hours. That loss is estimated at 25 per cent. But a consideration of a still graver character is the evil effect a foul atmosphere exercises upon the health of the miner. M. Burd, an eminent French writer, says upon this subject: "The circulation of fresh air is one of the most important things in mining. This importance may be readily understood when we find that four-fifths of all the workmen who perish in mines are victims of foul air." Scoffin, an English writer, makes use of the following language: "The stagnant air acts on the organs of respiration, producing consumption and other allied diseases, which carry off the miner in the prime of life. As a class they are robust and naturally less liable than even seamen to such diseases, but such is the pernicious effect of the impure air they breathe, that 52 per cent. die of consumption, in a country where the percentage among agricultural and other surface laborers amounts only to 20 in the worst localities." The cause of humanity should procure a remedy when an effectual one is within reach. Many other difficulties present themselves in deep mining, which increase in a fearful ratio as depth increases, and the profits, which have already dwindled down to a small amount, soon threaten to be absorbed entirely, and then be exceeded by the cost of mining. The fate of these mines if no remedy is found, is therefore clearly foreshadowed. The only remedy, positive and sure in its operation, presents itself by the construction of a deep adit or tunnel. It will cut the mines at a depth of 2,000 feet, draining off the water to that depth by its natural flow, securing the best ventilation, cooling off the atmosphere in the mine, furnishing facilities for transportation, and making it possible to dispense with all pumping and hoisting machinery; for the miner can enter the mine from below, work upwards, and the ore will fall down by its own gravity, while a railroad in the tunnel will transport the same at small cost to the adjacent valley.....In all European mining countries the respective Governments, with an eye to the importance of the production of bullion, and to promote the general welfare of the population, have given substantial and liberal aid to similar undertakings, a number of which, on a much larger scale than the one here proposed, have been successfully carried out, and the future of their mines secured. A tunnel

was lately finished in Hanover fourteen miles in length; one in Saxony is nearly completed eight miles in length, and another in Austria has a length, also, of eight miles.....The world's stock of coin in the year 1818 was, in round numbers, 11,800,000,000; to this has been added, to the present time, an equal amount, of which the United States have furnished, according to Secretary McCulloch's late report, $1,100,000,000. Allowing two thousand millions as the natural increase of taxable property by growth of the country, we still find that the same has doubled in the United States within the period named; from seven thousand millions it has increased to sixteen thousand millions. This result is due not to a direct depreciation of the precious metals, for that is regulated by the standard adopted by the Government, but by an increase in value of all property and commodities by which the same article that could have been bought eighteen years ago for one silver dollar now requires two; in other words, two silver dollars, at the present time, only have the intrinsic value of what one had before. It must be borne in mind that there is a vast difference between the production of gold and silver and other productions. Most of the latter are articles of consumption; they are useful for a special purpose, in the application of which they are consumed, disappear and cease to exist. The farmer who produces wheat to the value of $1,000, and the miner who digs out gold to that amount, may desire an equal profit from their different pursuits, and in that case one stands on an equality with the other, as far as individual gain, or the interests of a particular locality is concerned; but wheat is ground into flour, made into bread and consumed, while the gold dug out by the miner finds its way into the channels of trade, is transferred from one nation to another, as the balance of trade may require, and forms a permanent addition to the stock of precious metals of the world. At the time of the discovery of America, in 1492, the stock of the precious metals in Europe was estimated at $170,000,000; in the year 1600 it had increased to $650,000,000, or nearly four times as much. This extraordinary addition to the precious metals in a little over one hundred years had a corresponding effect; gold and silver became cheaper in the same ratio as their quantity had increased; it took four times the amount of money to buy any commodity—that is to say, all commodities increased in price fourfold. The same increase in prices can be traced distinctly to the present day, as the stock of the precious metals gradually increased, making due allowance for all other causes which would exercise a bearing in that direction, such as the increase of commerce, the growth of population, facilities for intercourse between different nations, etc. The conclusion we arrive at by carefully examining into this subject, which is clear and positive, is that the increase in quantity of the precious metals depreciates their value in precisely the same proportion as it appreciates the value of all kinds of property; or in other words, the percentage added to the stock of the precious metals in circulation adds the same percentage to the money value of all the property in the world. Francis Bowen, the best American authority on political economy, expresses this view in the following words: "The general principle is, that the value of money falls in precisely the same ratio in which its quantity is increased. If the whole money in circulation should be doubled, prices would be doubled; if it was only increased one-fourth, prices would rise one-fourth." The same principle is laid down by John Stuart Mill, well known as the highest modern authority in England. He says: "It is to be remarked that this ratio would be precisely that in which the quantity of money had been increased. If the whole money in circulation was doubled, prices would be doubled; if it was only increased one-fourth, prices would rise one-fourth." To illustrate the immense bearing this rise in prices exercises all over the world, we will assume the following figures: Taking the taxable property of the whole civilized world at two hundred thousand millions, the amount of money in existence at thirty-six hundred millions, the addition of nine hundred millions would depreciate the precious metals twenty-five per cent., and in consequence it would require two hundred and fifty thousand millions to purchase all the taxable property in the world. The addition of nine hundred millions in money, therefore, would have the effect of producing fifty thousand millions in the increased value of property. Every addition of one hundred millions has its corresponding influence on the increased value of all property; it adds over five thousand millions to the property of the world. This increase of value may not be perceptible from year to year; the aggregate result, however, after a number of years is inevitable. Bowen refers to this as follows: "There may be brief and violent fluctuations in the relative value of particular commodities while the great movement is silently going on which slowly enhances the value of all." This increase in value, however, does not materially affect individuals; for when the cost of living increases, the rates of wages do also; but it acts as a stimulus to enterprise, and thus creates general prosperity. Hume, long ago, remarked that "in every kingdom into which money begins to flow in greater abundance than formerly, everything takes a new face; labor and industry gain life, the merchant becomes more enterprising, the manufacturer more diligent and skillful, and even the farmer follows his plough with greater alacrity and attention. But when gold and silver are diminishing, the workman has not the same employment from the manufacturer and merchant, though he pays the same price for everything in the market. The farmer cannot dispose of his corn and cattle, though he must pay the same rent to his landlord. The poverty, beggary and sloth that must ensue are easily foreseen." Even so cautious and conservative a writer as McCulloch fully admits the truth of this view, though he adds the just qualification that the fall in money must proceed from natural causes. William Jacob, in his valuable treatise on the precious metals, remarks: "The world is really very little richer or poorer from the portion of metallic wealth that may be distributed over its surface; the whole mass of material wealth is neither diminished nor increased by any change in the relative weight of gold and silver to the usual measures of other commodities. The only benefit to the world in general from the increase of these metals is, that it acts as a stimulus to industry, by that general rise of money prices which it exhibits to the view. It matters little to him who raises a bushel of wheat, whether it is exchanged for a pennyweight or an ounce of silver, provided it will procure for him the same quantity of cloth, shoes, liquor, furniture, or other necessaries which may be desirable to him." But when a debt already exists, being a fixed number of dollars, the decrease in value of each dollar reduces the debt in the same proportion. The immortal and much lamented Lincoln thoroughly understood this question when, in his annual message of 1862, he made use of the following language: "The immense mineral resources of some of those Territories ought to be developed as rapidly as possible. Every step in that direction would have a tendency to improve the revenues of the Government and diminish the burdens of the people. It is worthy of your serious consideration whether some extraordinary measures to promote that end cannot be adopted." That wise and good man had carefully studied the effect which was thus strongly felt in Europe, and which is alluded to by Allison, the English historian, as follows: "It will belong to a succeeding historian to narrate the wonderful spring which this country (England) made during the five years which followed 1852, under the influence of the gold discoveries in America and Australia. The annual supply of gold and silver for the use of the globe was by these discoveries suddenly increased from an average of ten million to thirty-five million pounds sterling. Most of all did Great Britain and Ireland experience the wonderful effects of this great addition to the circulating medium of the globe. Prices rapidly rose, wages advanced in a similar proportion, exports and imports enormously increased, while crime and misery as rapidly diminished. Wheat rose from forty five to sixty-five shillings, but the wages of labor of every kind advanced in nearly as great proportion; they were found to be about thirty per cent. higher than they had been five years before. In Ireland the change was still greater, and probably unequaled in so short a time in the annals of history. The effect of the immense addition to the currency of the world, to the industry of all nations, and in an especial manner of the British Isles, has been prodigious. It has raised our exports from £58,000,000 in 1851 to £97,000,000 in 1854; £95,000,000 in 1855, and £115,000,000 in 1856; and augmented our imports from £157,000,000 in the former to £172,000,000 in the latter year." Thus the influence of the increased metallic currency saved Great Britain from bankruptcy, and while its mysterious agency was working these wonders in Europe, it exercised a similar bearing in this country. Some years before the late war broke out this country had commenced to prosper, and when that deplorable event took place our resources were just beginning to expand under the beneficial influence of the increased metallic wealth. Had it not been for the constant and continuous flow from California, which increased the resources manifold when they were most needed, the difficulties of providing the requisite means to carry on the war would have been so great that the disruption of the Union might have been the result. It has been the marvel and wonder of all Europe how the United States carried on that gigantic war for four years, kept one million of men in the field, contracted during that brief space of time a national debt of nearly three thousand millions, and came out in a more prosperous and flourishing condition than when she engaged in it. The explanation of this wonderful phenomenon is simple: it was the magic agency of gold which wrought it. Since the war is ended the immense increase in prices, which is particularly noticeable in the large cities of the East, where real estate, rents, wages and everything else, have assumed an apparently exorbitant value, has been mainly ascribed to an inflated paper currency, and an impending financial crisis has been predicted as a necessary consequence. We have been expecting it for three years past, and it has not taken place yet; nor do we consider it probable that it will take place at all, as long as the increase of metallic wealth keeps pace with the expansion of trade.....The result, therefore, has been that the individual debts of the American people have, to a great extent, been transferred to the Government, increasing the same to an enormous extent, and amounting to-day to twenty-five hundred millions. That debt is a burden on sixteen thousand millions of taxable property; if we increase the latter, we virtually reduce the former. The amount of the precious metals at present in circulation throughout the world amounts to $3,600,000,000; the proposed tunnel to the Comstock lode will within thirty years add $900,000,000 to the same, or 25 per cent. It will consequently add 25 per cent. to the taxable property of the United States, equal to four thousand millions, which, at a rate of taxation of two per cent., will give an annual increase to the monies of Government of forty millions for each of the first thirty years, and eighty millions for each year thereafter. The proposed work adds each year thirty millions to the stock of the precious metals, equal to the one hundred and twentieth part of the thirty-six hundred millions in existence; it therefore adds the one hundred and twentieth part to the sixteen thousand millions of taxable property in the United States, equal to an annual increase of one hundred and thirty-three millions. That addition, made from year to year, gives the above stated result, as will be seen by the following table:

| Increase of Taxable Property. | Increase of Revenue. |
|---|---|
| First year—$133,000,000 at 2 per cent..... | $2,666,000 |
| Second year—$266,000,000 at 2 per cent... | 5,333,000 |
| Third year—$400,000,000 at 2 per cent.... | 8,000,000 |
| Sixth year—$800,000,000 at 2 per cent.....16,000,000 | |
| Twelfth year—$1,600,000,000 at 2 per cent..32,000,000 | |
| Fifteenth year—$2,000,000,000 at 2 per cent.40,000,000 | |
| Twenty-fourth year—$3,200,000,000 at 2 per cent.....64,000,000 | |
| Thirtieth year—$4,000,000,000 at 2 per cent.80,000,000 | |

If this annual increase in revenue be set apart for that purpose, it will pay off the whole National debt in forty-six years." After quoting Francis Bowen and Sir Robert Peel, the committee concluded with the following extract from Mons. Michel Chevalier's treatise on "Money:" "Owing to the discovery of the new gold mines, a time will arrive when a change will come over the British Treasury, as if some geni, an enemy of its creditors, had spirited away their dividend warrants and substituted others of only half their value. Not that the number of pounds sterling due to them as principal, and of which the interest is counted to them every six months, will be diminished; not that the quantity of gold contained in the pound sterling will be lessened; but the British Treasury will henceforth draw from the tax-payers each pound sterling with as little difficulty to them as it previously took to pay a half sovereign."

## California.

**El Dorado.**—Correspondence of the Sacramento *Union* from Placerville says: In a ledge fifty feet in width, running through the old Buckeye claim, on Texas Hill, every pan from several places on the ledge prospects from five to fifteen cents to each pan. The owners, H. A. and W. Wright & Co., intend to put up an arastra immediately. The Long Island claims were purchased a few days since by French & Co., of Gold Hill, at $2 50 per foot. Hall & Co., on the same ledge north, are getting fine rock. They intend to put an arastra on their claim immediately. Shepard & Co. have got ready to take out rock. One thousand dollars of coarse gold has been picked up from the dirt within the last four weeks. The cement mills on Smith's Flat are all paying good wages. At Brownsville, Tullock & Co. have made three runs on rock from the Independence ledge, which paid between thirty-five and fifty dollars per ton. The old Eagle claims at Grizzly Flat are paying better than they did ten years ago. A new forty-stamp mill will soon be completed on the old Steely ledge .....The *Courier* says: We saw, the other day, four or five very rich pieces of quartz from the Manning ledge. The specimens looked to be at least half gold, with a sprinkling of sulphurets, and it was estimated that a ton of such rock would be worth at least $5,000. They are now down about one hundred and thirty feet, and work is progressing finely.....Dickerhoff & Gowan have concluded to erect a ten-stamp mill to crush the gravel taken from their tunnel on Cedar Hill. Two mills have recently been put up on Texas Hill, which promise to pay well.....A fine ledge of decomposed quartz was found a few days since by Mr. Clackley, while at work sluicing off surface on his lot, which pays ten cents to the pan.....Mitchell & Co., of the hydraulic claim on Little Spanish Hill, have a bed of cement thirty feet deep, upon which they intend to put up a mill.

**Nevada.**—The *Transcript* says: Leeth & Co., and Craig & Co., of Deer Creek, have discontinued operations on account of high water.....Stiles' mill is being repaired, and will resume work in about ten days. Five new pans have just been completed for the Banner Mining company. They now have ten pans and two settlers.....At the Soggs mine, on Deer creek, rock is being taken from both the upper and lower tunnels, under a contract to take out several thousand tons. We are told that the quartz is looking first-rate.....The *National* states that the Allison Ranch company are now having built fourteen of Norton's pans, to be put up and used by them to grind the tailings which have accumulated about their works for a number of years. It will probably take the com-

pany a year to exhaust their tailings, which are supposed to be very rich.....The Grass Valley *Union* says: The Union company have struck a very handsome two-foot ledge in their claim. The rock is good looking, and it is estimated will yield about $30 to the ton.....The Union Hill mine has been compelled to suspend operations temporarily on account of high water

**Mariposa.**—The *Mail* says: All the employes on the Mariposa Estate have been discharged, and work at the mines and mills has been suspended and will remain so, it is thought, during the pendency of the suit between the company and Dodge brothers..... Correspondence from Horseshoe Bend says: Mining is here carried on at present on an extensive scale. Some ten large hydraulic claims are in operation, besides drifting to a great extent, and as a class the miners are doing well. Among the most successful miners are John Lewis, Captain Notherwood, and Frank Horbeck. Quartz mining here, just at present, is at a stand still. We have a fine ten-stamp mill, built by Mr. J. B. Brichman, of Coulterville; but he failed to make it pay, from the want of capital to furnish the mill with a proper amalgamating apparatus.....Correspondence from Coulterville says: Douglass, Chamberlin & Co., are working away with a full force on their mine. They have four shafts sunk, ranging in depth from thirty to one hundred and thirty feet, from all of which they are getting good rock. This company have rented a portion of what is known as the "Old French mill"—have put in four of Wheeler & Randall's pans, and made other improvements. They are working twenty-two tons daily.....McCrew & Bell, on Black creek, near town, have started their mill of five stamps. Their rock is paying about $30 per ton. Charles Hope, the Superintendent of the old Goodwin mine, on the North Fork, is now getting out and crushing some very rich rock—he has crushed sixty tons and it yielded $36 per ton. The Virginia, owned by Capt. J. M. Aiken, three miles from town, has been opened in six different places, and in every place it shows a large, well-defined vein.

**Amador.**—The *Ledger* learns from Pine Grove that the Italian is again under the management of its old proprietors, McLaine and Sorocco Bros. The mill is running night and day.....The Golden Eagle, Vaugh & Co., is yielding as largely as ever before. A ton of ore worked by Thoss, at his sulphuret works on Else creek, as an experimental test, yielded $312. Cost of working $80.....The Union is experimenting very successfully. Three tons of ore, such as pays in the old way four or five dollars, was made to pay $50 per ton .....The Paugh mine and mill are going night and day, and the yield continues entirely satisfactory..... The Craft mine is now prospected by tunnel over 300 feet in length and some 175 feet in depth. The body of ore is large, varying in thickness of lode from five to fifteen feet. A lot of the ore worked by Ambler, at the Sutter creek sulphuret mill, a short time since, paid over $300 per ton. Craft has over two hundred tons on hand, but no mill, and cannot get it worked. .....The New Discovery, of which we spoke week before last, is now prospected twenty feet in depth, and looks more favorable than ever..... The placer mines are not producing much. Daniel Fake & Co. have had to suspend work on account of water ..... Luttell, Hawkins & Co.'s claims have paid unusually well this winter.....The Bradshaw's, J. F. and Sam, have a fine claim on Marshall Flat, and are said to be taking out lots of gold .....Billy Marshall is just getting his hydraulic claim into shape, and after nine years work thinks there is plenty of good ground in his claim to keep him going nine years longer..... Tom Cline struck a claim the other day on Marshall's gulch, and panned out $35 the first day.

**Calaveras.**—The *Chronicle* says: Notwithstanding the bad weather, Hoerchner, Meyer & Co. have vigorously prosecuted labor on their claim near Middle Bar. They have run their tunnel a distance of one hundred feet, directly on the lead, and throughout its entire length the quartz prospects finely.....We were shown this week some fine specimens of gold-bearing quartz rock from the celebrated "Billy Shepherd" claim, near Whiskey Slide. Gold was plainly discernible without the aid of a glass. The vein, at the depth of thirty feet, has developed into a solid ledge of quartz four feet in width, between well-defined walls. It is estimated that the rock, unassorted, as it comes from the shaft, will pay $20 per ton.

**Alpine.**—The *Miner*, Feb. 2d, says: Our "local" is waiting for the new management, whose "energy and business tact" has driven the Morning Star ore from the Washington mill, to "place the mill running with results, etc.," and for the Star company, to conclude who shall smelt their ore. That it will be smelted, is settled.....Mining claims are working as usual.....The Silver Mountain *Bulletin* says: Capt. Uznay will erect furnaces for the smelting of Morning Star ore. The ore can be worked by mill process, but not at a profit, and pay $17 50 per ton for it and take it out of the mine. Guido Kustel came here last summer and made careful assays and estimates of the ores of that mine, with the view of taking a half interest in the contract with Capt. Uznay; but his estimates were that $14 per ton would be an exorbitant price for the ore and take it out of the mine; and that $17 50 per ton and mine it, would ruin the man who took the contract. If the Morning Star company consult their interest, they will modify their contract with Uznay, so as to enable him to erect smelting furnaces, as until some profitable mode is discovered for working these ores, the mine is valueless to the stockholders. .....A "brick," weighing seventeen ounces, from Morning Star ore, was presented to J. C. Ransom, superintendent of the mine, and one of forty-two ounces to W. D. Root, the President of the Washington company.

## Montana.

The *Democrat*, Feb. 7, learns from Robert W. Donnell, who has lived in the territory for the past three years, that he is fully satisfied from personal explanations and observations during his residence there, that the extent and richness of the placer or gulch diggings of the territory are greatly underrated by those who have made hurried visits. Many important discoveries have been made within the past six months, and many companies have been formed which are engaged in bringing water by ditches to the various dry gulches around Helena, Blacktoot, Gold Creek, Silver Bow and Confederate; all of which will pay well and afford labor for double the number now in the territory, and there is every reason to believe that in the vast unexplored regions surrounding them are as rich deposits as any yet discovered. The past six months' operations have established the fact as to the vast extent and richness of the quartz and silver lodes, and the ease with which they can be worked; being comparatively free from the base metals which abound in the mines of other sections to such a degree that the ingenuity of man has not devised a mode of effectually separating the base from the precious ores. Mr. Donnell is sanguine in his belief that the extent both of placer and quartz deposits of Montana exceeds that of any other country yet discovered on this continent, and that the yield will be inexhaustible in the future. The mines already discovered and opened, in connection with the increased supply of water essential to working them, will supply labor for many thousands at wages averaging in gold six dollars per day. The cost of living is reduced within the past year about one-half that of former times. The extent of country where the precious metals are found is probably as large as one-half the State of Missouri..... The Helena *Herald*, Jan. 31, says: A shooting affray occurred near Professor Hodge's mill, on Orofino gulch, about three miles from the city, which resulted in the severe wounding of our esteemed friends Prof. Hodge and his son, and the fatal wounding of a Mr. Moore..... Prof. Hodge's quartz mill of ten stamps is at the head of Orofino gulch, half a mile from the shafts of the Whitlach, Union or Omyhee lode. There are some thirty men employed in taking out and hauling ore. There is a woodon railway connecting the mines with the mill, and small four wheel cars handled by single mules ply regularly over the track, conveying the precious ore to the loft of the mill building. The rock is first run through crushers on the upper floor, and crumbled to particles the size of a pea, or less, before passing into the stamp batteries. Two very perfect and substantial arastras run regularly in connection with the stamps and crushers; also a set of separators and an ingeniously constructed rocker. The Professor is now engaged in putting in a massive chilling mill, consisting of two huge granite stones weighing several tons each, and worked out in circular form on the rim, while the sides, which run together like flouring burs, are nearly level or slightly convex and concave. The whole of this machinery is driven by two small engines—one fifteen and the other eight horse power—which are quite ample. This mill was started on the 2d day of October last, and has run very steadily ever since. The ten stamps weigh each six hundred and thirty pounds, and are run at a rate of sixty-eight to seventy strokes to the minute. Every part of the mill machinery and appurtenances for saving gold are put up in the most substantial and workmanlike manner. The buildings are all spacious, convenient and enduring. They have a thousand cords of good wood on hand, and about the same amount of quartz ore ready for the mill.....Again, last week, after another seven days' run, the Hendrie mill, running sixteen stamps and crushing about one hundred and forty tons of second class rock, cleaned up the very handsome sum of $4,827 90, and the retort, as turned over to Monsieur Sanders by Mr. Dow, foreman of the Hendrie mill, was the cleanest and prettiest gold that we have yet seen in any quantity. The indomitable Little Giant mill of Judge Turnley, running ten stamps and crushing about a hundred tons of ore, cleaned up $6,323 30, also clean and fine looking gold—making the wholesome total of $11,151 20.....The Virginia City *Post*, Feb. 9, says: The Postlewait mill, but recently started, and crushing from the Kearsarge lead, made one of the best, if not the best run ever made in the Summit district last week. On five days' run, with fifteen stamps, they crushed seventy-five tons of rock, and cleaned up on Sunday morning $2,488 20. Their arastras not being completed, it is estimated that forty per cent. of the gold that would otherwise be saved now goes to loss. The mill will crush one hundred tons of rock per week. The expenses are $640 per week, or $6 40 per ton, including mining, hoisting and hauling the rock. As it now runs this is a tip-pop paying mill, and when their facilities for saving gold are completed, and the defects are remedied, which are inseparable from new machinery, it is believed that the Postlewait will rank A No. 1 among the successful quartz mills of Montana. .....The miners of Yellowstone are reported scarce of flour, and have sent word to the people of the valley to commence clearing the snow from this side, so they can get through with their teams.....Bush & Co.'s mill on the Lucas lode, which has not been running for a few days owing to the repairs it was necessary to make on some of the machinery, will start up again in a few days. This company are engaged in sinking a new shaft of their lead, and are pushing the work with a commendable enterprise.....Under the "Helena" heading it says: A discovery was made on last Wednesday by Mr. E. R. Collins, in the little dry ravine that runs past the head of Bridge street where the bridge is located. Good prospects are said to have been obtained—from six to fifteen cents, we understand. It is supposed by some to be the old channel of the creek that at one time ran in Dry gulch. .....The largest bullion brick which we have as yet seen was run by Mr. Rumley on last Tuesday. It weighed eighty-four and one-half ounces, and was valued at $1,680 in greenbacks.....The Hendry mill in Grizzly gulch has been rushing through the quartz during the past week, with a result which is far ahead of anything that it has yet done. There was cleaned up from this mill on last Wednesday, from a six days' run on Union ore, the nice sum of $5,100, in the best looking retort we have as yet seen in the territory. The mill run eighteen stamps and crushed some one hundred and fifty tons of rock.

## Colorado.

The Colorado *Times*, Feb. 9th, says: The number of quartz mills now running is not at all as large as that which might, could, and *should* be pounding out the gold, if some of the proprietors and parties interested had more pluck or practical industry, even at this wintry season of the year. Many are preparing for actual operations in the spring, and others are too slow or speculative to stir much, until "better saving processes," more immigrant "capitalists" and "lower-priced" laborers arrive in their midst! In Gilpin county, only the following mills were operating the past week, as nearly as we could find out: Eureka District—The Kember Brothers' mill; Roth & Mendell's, do. Nevada District—The Wright mill, Fitzpatrick; Corydon company's do., Conlee; Ophir company's do., Humphrey; Whitcomb's do., Whitcomb; Bay State company's do., Russell. Russell District—Geo. R. Mitchell's company's mill; Judge Morse's do. do.: the Chase do. do. Gregory District—The Kipp & Buell mill; Briggs' mill; Smith & Parmelee do.; Black Hawk company's do., No. 1; Black Hawk company's 60 stamper; Manhattan do.; Eagle do.; Du Bois do.; Keith do.; Sensenderfer do.; Lyon's Works do.; N. Y. (Gunnell company's,) do.; Excelsior do. Hale & Patterson mill, in Chase Gulch; making the number at present running, in Gilpin county only twenty-four. In Clear Creek county, there are working in Empire District—The Knickerbocker company's mill; Eagle company's do.; Andrew Mason's do.; Leeper's do.; Liebeg company's do. Spanish Bar District—The Whale company's mill; S. C. C. company's (Myers') do. Georgetown District—Joe Watson's company's Silver Works; Stowell & Co.'s do. In Boulder and Park counties about four or five mills are running this winter.....In a subsequent issue the same paper adds: The Fitspatrick mill, at Black Hawk, which is crushing from Gunnell lode ore; the Cheney mill, of Lake District; and the Col. Grafin mill, of Gold Dirt. The Nash mill, of Russell district, has started up again, and is working on Gunnell ore..... The *Weekly Times*, of Feb. 19th, says: Last week was quite a successful one with the mill men, considering the stormy and changeable weather. Mr. Fitzpatrick, manager for the Gunnell company, cleaned up 252 ounces for the week. Allowing $20 currency to the ounce, the above netted $5,040 00, which isn't bad for a wintry week's work. The run by the Black Hawk company is given at 218 ounces, and the Smith & Parmelee 122 ounces. A mammoth gold retort was left for shipment, yesterday, at Geo. T. Clark & Co.'s bank, by the Eagle company's manager, at Gold Dirt. It was worth $1,200, weighing about 60 ounces. Messrs. Warren Hussey & Co., bankers, shipped to New York, this morning, per Wells, Fargo & Co., 400 ounces of gold, including the 252 for the Gunnell company. Messrs. Geo. T. Clark & Co., bankers, shipped for themselves and others, 316 ounces; the Rocky Mountain National Bank sent on 340 ounces. Total of this morning's bank shipments, 1,056 ounces, or about $21,120. .....In its daily issue of Feb. 20th, says: This morning's stage to the States took out a fair average lot of "retort," a part only of the past week's yield. Many of our mill men do not ship but once a month, and some of them send their spare scads to the east by private hands to save expressage. In addition to yields spoken of yesterday evening, the Black Hawk company's was 131 ounces the last week, that of the Sterling company 92 ounces. The shipments this morning by the bankers were as follows: Rocky Mountain National Bank 300 ounces; Warren Hussey & Co., 260 ounces; Geo. T. Clark & Co., 81 onnces; making the total, currency valuation, about $13,000,000.....We were shown to-day, by Mr. John Kindall (formerly of Wapello county, Iowa,) a nice chunk of retorted gold

gotten from half a cord of quartz, at a depth of only twelve feet from the surface. The lode is a new one, discovered and owned by himself (1400 feet,) called the "National Bank Lode," on the Casto Hill, in this district. He had his quartz crushed in Roth & Mendell's mill. The chunk spoken of is worth $65. If other owners of good lodes would only keep at work developing them and doing likewise, what a wealth of gold would be retorted here weekly! Some of the mills are crushing for $35 per cord.....The *Register* says: The Consolidated Gregory mine has, for a considerable time, been the leading stock in the New York market, and a spirit of jealousy, or something of that sort, has induced a severe attack upon it by the New York *World*, which has been copied by other eastern papers and by some of our home contemporaries. As several mis-statements have been made, it may be well to state the facts. This mine was originally stocked at fifty thousand shares at one hundred dollars each. The mine has been worked for nearly two years. It has been finely timbered and opened, revealing an immense quantity of rich ore, a very small amount of which only has been raised. Believing their nominal capital too large the company reduced the par value of their stock one-half. They then bought the Pioneer Smelting Works, costing considerably over two hundred thousand dollars for their construction, three hundred feet on the Hunter lode, one of the best in the country, one hundred feet on the Bates, one hundred and fifty feet on the Milwaukee, usually supposed to be the Bobtail, one thousand feet on the Maria lode, and $120,000 worth of the Consolidated Gregory company's indebtedness, all of which was turned into the Consolidated Company, which then restored the par value of the mine to its old standard, recalling the old stock and issuing in lieu thereof one hundred thousand shares at a par value of fifty dollars each, paying for the newly purchased property forty thousand shares of the new stock. An intimation, perhaps more properly a direct charge has been made, that the owners of the forty thousand shares are trying to force them upon the public at two dollars or less per share. To see how fallacious the statement is, it is only necessary to say that at that rate the whole mine would amount to only two hundred thousand dollars at the highest figure named, or only a small fraction of what it cost. Of course the charges are either malicious or are the result of ignorance. The company is now reducing its own ores to sixty-five per cent. copper matte, and must realize a fine profit. Hitherto an immense amount has been expended in putting the mine in order. Hereafter the only expense will be that of raising and reducing the ores. No mine in Colorado gives greater promise of future success.

## North Carolina.

The Sutton mine, says Professor Oscar N. Lieber, in his report to the Legislature of North Carolina, is situated in the northeast corner of York district, east of the Catawba river, and on account of the country rock, the richness of the ore, and various other points to be noticed in connection with it, presents peculiar features which attach more than ordinary interest to it. The mine exhibits a vein in a greissoid granitic country. The strike is N. 52 deg. W., the dip N. 38 deg.. E. 45 deg. At one point the vein widens to such an extent that quite a considerable hill is formed by the bulky outcrop of quartz. The quart' of the vein is finely crystalline, but owing to the decomposition of a great abundance of iron pyrites exceedingly cellular. The main vein, although in a granitic country, is accompanied by talcose slate on its wallings. This slate is of a cloritic nature, and is that which in North Carolina is termed the "Slate of the vein."....Mr. James Baxter, formerly of California and Colorado, Superintendent of the Sutton Gold Mining company, writes from Charlotte, North Carolina, Feb. 27, a report relative to this same mine—which in view of the paucity of mining intelligence from that State, and because of its mineralogical value, we give entire, as follows: "There are," he says, "at present discovered six distinct and separate mines, two of which intersect each other on Flint Hill, known as the 'Clanson Veins,' while the other four run directly through the centre of the estate in a N. E. and S. W. direction. I have confined myself to operating on two of these mines only, viz., the 'Shinpock' and 'Clanson.' On the Shinpock the vein proper is about five inches wide, and exists in an aqueous formation, being surrounded with talcose slate, decomposed metamorphic rock, and clay. The material composing the crevice is the hydrated oxide of iron, and very rich in gold, which would certainly yield, with improved machinery such as 'Dodge's,' from $100 to $150 to the ton. This crevice is not regular at the depth I have worked, but split up, in some places almost disappearing, at others widening to six or eight inches; but this is nothing unusual in such a formation. When we can reach a depth of one hundred and fifty or two hundred feet, we will then have a crevice of massive sulphurets of iron, and from fifteen to eighteen inches wide, as that is now the width of the gold-bearing quartz and heavy spar together. I have found several specimens of this spar that contain very fine sulphurets of iron, being, as you are well aware, a positive indication that the whole mass will be composed of sulphurets at a depth where the vein exists in the primitive formation. When this mine is fully opened, and worked with a good water shaft, at least twenty-five tons of ore can be mined and brought to the surface daily, which I am confident will yield from $60 to $75 to the ton in gold. On the 'Clanson mine' I have cut a crevice of sulphurets of iron-hydrated oxides of iron—horn blend and field spar. The crevice is about three feet wide, distinctly defined, and lying between two walls of decomposed metamorphic rock. There is on each wall from one to two inches of the hydrated oxide of iron, which will yield in the mill from $75 to $80 to the ton in gold. The sulphurets in this mine are of two kinds, the laminated and crystallized, and contain from $25 to $28 to the ton in gold. The horn blend also contains some gold. This vein dips at an angle of 28 deg. at the depth of my workings, but will run more toward a perpendicular as soon as we get below the water level. This is positively the best vein I have seen in this country, and when it is opened, with machinery to mine and keep out the water, will furnish 75 tons of ore daily, which will yield, by the 'Dodge' and barrel process from $23 to $30 to the ton in gold. I am under the impression that on going down on this mine some of the crevice will be composed of sulphurets of copper. I am led to this belief from the fact that indications of argentiferous copper ore now exist in the vein. Should this be the case we may yet be able to take out enough copper to pay our milling expenses. I do not consider these mines fully developed as yet. When they are furnished with proper machinery for mining, I can raise to the surface all the ore for about $1 25 cents per ton. The hauling with our own teams will be about 50 cents per ton. The milling with a ten-ton mill, including wear and tear of machinery, oil, etc., will be about $1 to the ton. But as we increase our machinery the cost of milling will decrease; as, for instance, to run twenty tons per day will only require one more man on a shift than it does to run ten tons per day, and had we a fifty-ton mill it could be reduced and the gold extracted for 38 cents per ton. The other mines on the property I am unable to report upon, other than to state that the outcrop is as good as the "Shupack," and when fully developed will certainly yield in the aggregate fifty tons per day, which with the above will be one hundred and fifty tons per day. I have put these figures low, as I do not wish you to be disappointed when we get to running. Wood can be had at the mill and mines for $1 per cord and contracts can be made for 50,000 cords at any time.

## Minnesota.

Prof. H. H. Eames, State Geologist of Minnesota, in his report, published in the Superior *Gazette*, says: The result of the practical working in the quartz veins of Vermilion Lake and its vicinity, leads conclusively to the belief that they will be found remunerative, in the extraction of gold and silver, and will, undoubtedly, be the means of developing other metals that occur in such abundance in that region.....I referred in my last to the slates of the St. Louis river; also, to the copper-bearing rocks of the north shore of Lake Superior; since which a fissure vein mentioned in Col. Whittlesey's report as being such, and that it would probably contain the precious metals, has been found to do so, having silver to a large amount associated with the sulphurets of iron.....I do not wish to advance any theories on the vein phenomena of the Vermilion district, but I would here remark, that my examinations this season have led me to suppose, that the hidden sources of wealth, lying buried in the strata, would justify the investment of capital. The natural facilities at this lake for working these veins, are unsurpassed, there being an abundance of timber of all descriptions, water and water-power, and withal, the district is easy of access.....An appendix gives the following as the result of six assays made by him from Vermilion rock: Specimen No. 86.—Yield per ton: gold $8 42, silver $3 35; total $11 77. No. 93.—Yield per ton: gold $24 61, silver $2; total $26 61. No. 94.—Yield per ton: gold $3 01, silver $4 41; total $7 42. No. 97.—Selected—Yield per ton: gold $62 81, silver $7 05; total $69 86. No. 98.—Yield per ton: silver $4 83, gold only a trace. No. 99.—Fourteen feet below the surface—Yield per ton: gold $32 06, silver $12 73; total $44 79. No. 100.—Yield per ton: gold $27 34, silver $5 35; total $32 69.

## Idaho.

The Owyhee *Avalanche*, Jan. 26th, says: Wells, Fargo & Co., obligingly furnish us with the following description and amount of treasure shipped from the Owyhee office during 1866:

| | |
|---|---|
| Bullion | $660,667 49 |
| Gold dust | 90,216 06 |
| Gold coin | 26,144 05 |
| Legal tenders (coin value) | 28,902 74 |
| Total | $805,930 34 |

Pretty substantial amount of business for so new a camp. This does not include the amount shipped by Holladay's Express which was running several months. .....We were shown a statement of an assay made by Blake & Co. of about one ounce of ore from the Sherman ledge (in Flint district,) which yielded at the enormous rate of $6,009 00 per ton of two thousand pounds. Results by hand process have been obtained equally as large. There is little if any doubt but the Sherman is one of the most valuable quartz mines in Idaho. Mr. Swartz—one of the owners—called at our office recently, and from his manner and conversation we could but infer that the prospects were all that he could wish. He says that during the coming summer the company expect to supply one or more mills with ore, provided the mills will do custom work.

## West Virginia.

A letter written by Joseph Murphy, from Cottageville, Jackson county, Feb. 12th to a contemporary, says: Last summer Mr. William Cunningham bored a hole for oil, and found a vein of native silver two feet thick; four other holes have been bored to test it thoroughly, and silver has been found in every hole. The vein is three hundred and fifty feet deep. There are three veins, one from eighty to a hundred feet deep; the second is about two hundred feet deep. Those veins are not worth much, but the lower vein is very rich. The rock here lies flat and don't crop out. I have seen the silver myself brought out. I am now sinking a shaft for the lower silver vein, for the Pittsburgh Exploring company. If any of my friends want to invest their money to good advantage, there is a rich field open for them here. They can come here and see for themselves. The way to come is as follows: Come to Pittsburgh, and then to Wheeling, Va.; from there to Parkersburg; from Parkersburg down the Ohio river, about forty-five miles, to Ripley; landing at Ripley, get off the boat and inquire for Cottageville, or the silver mines.

## Canada.

The Kingston *News*, March 1st, says: Very fine specimens of native gold have been brought from Madoc by Mr. Otto Meves, of Princess street. Among them is a beautiful efflorescence of gold taken from a flat rock, and samples of the black carbonaceous dust from the Richardson mine, along with coarse grains and laminated particles of gold. He has in his possession specimens of quartz in which undoubted gold is distinctly visible to the naked eye, and also samples of metamorphic rock, obtained from an excavation in another part of the county. In the latter there are iron pyrites and gold. As a practical assayer of gold, Mr. Meves gives his testimony to the high degree of purity of the Madoc gold. It is, he says, of very fine quality. He has in his possession a button of refined Madoc gold, in intrinsic value worth perhaps $25, which presents a beautiful appearance, and is nearly as pure as gold can be. We are on the eve of an excitement in our locality common to newly discovered gold regions, but previously unknown in this quarter, and which will "wake up" the entire country. The amount of investigation that is already going on is something remarkable. Farmers from the distant townships come daily to Kingston, and purchase mining powder and lengths of fuse. Most of these people display an amusing reserve, while a few more communicative declare unhesitatingly the existence of gold on their farms. Once possessed of the idea, the rocks on every hilltop have to fly .....The Madoc *Mercury* says: So far as new discoveries of gold are concerned, the past has been a quiet week. On Tuesday morning, however, we were shown by Mr. N. Strong, of Port Hope, a few small specimens of gold which had just been washed out—by some gentlemen who were then engaged in "panning" some more of the same material—from earth taken from near the surface of his late purchase, the "Barry" mine in Elzevir. There has been a greater rush of visitors than ever this week to the Madoc mines, and the amount of travel is already so great as to render it necessary to put on extra lines of regular stages from Bellville. A village called "Eldorado," has been laid out by Mr. Moore on his farm in the immediate vicinity of the Richardson mine, and a number of lots have been already purchased. A Belleville company has finally bought the claim of Messrs. Carr & Johnson to the Richardson mine—and with two sets of rival claimants, the law will have to decide between them before mining operations can be resumed there .....The Peterboro *Review* says: From the specimens of gold procured in our own immediate back country, during the past week, we can entertain no doubt but that gold in large quantities is to be found in the rear townships of the county of Peterboro, as well as in the North Riding of Hastings. The same formation is continued westward from Madoc, and not only the character of the rock, and even the sand and the soil, but the yellow grains of undoubted gold which have greeted our eyes, under circumstances in which deception was well nigh impossible, leave no room to doubt but that a second California exists almost at our doors, which in richness and ease of production of the precious metal, in all probability, leaves both California and Australia in the shade.....The Belleville correspondent of the *Leader* writes: There is much apprehension amongst the good people of Belleville as to the safety of themselves and property in the forthcoming summer. There are even now a larger number of strangers than usual about the town, and hotel accommodation is at a premium. We are told that, in addition to the usual collection of "roughs" found in and about the auriferous localities, there are two thousand California miners and a large swarm of celestials at this moment on their way from San Francisco. Applications have been made to the town council for an increase of the police

force, which now numbers only one chief and four constables; and municipal bodies being much the same all the world over, you can well imagine what a state ours has been thrown into by such a request. At the same time we are thirty miles from Madoc.....A rumor was current to-day that the Hon. Billa Flint had been offered, but had refused $5,000 for an acre of land in Elzevir. I cannot speak of its truth, however. .....A letter from Madoc in the Montreal *Witness*, says: The gentleman who put the blast in the Richardson mine in January, who has been a miner in California and Cariboo, says there is no doubt as to the extent of this mine; and one of the best proofs of this opinion is that the company who have now purchased are contracting for the building materials to construct two buildings 40 by 50 feet each. One is to be over the mine, fitted with an engine and machinery for raising out the deposits from the shaft, and storing the precious metal; the other building to be located under a hill near by, with a railway to convey the quartz passage into the tap passing down through the crushing mill, and coming out at the bottom of the powder, ready for separating and gathering with quicksilver; the whole building, machinery, mills, and engine-room costing from $30,000 to $50,000. I therefore leave your readers to judge of the anticipated result of the renowned Richardson Madoc gold mine. Other claims are being brought up with prospects equally favorable at fabulous prices, varying from $5,000 to $30,000, for from 5 to 100 acres; the latter price having just been paid near this village. Companies are being formed in every direction in Canada West for mining and speculating operations, some of whom are about to prospect from thirty to seventy miles north—a region which is supposed by judges of mining operations, upon information collected by old hunters, to excel this locality for gold mining.

## COPPER.

### Michigan.

The Houghton *Gazette*, Feb. 21th, contains the following: The January products of Portage Lake mines were: Calumet mine, ingot copper, 155 tons 1062 lbs.; Quincy mine, stamp, barrel and mass, 83 tons 350 lbs.; Hecla mine, stamp, 80 tons 004 lbs.; Huron mine, mass, barrel and stamp, 75 tons 210 lbs.; Franklin mine, mass, barrel and stamp, 70 tons; Pewabic mine, mass, barrel and stamp, 60 tons 271 lbs.; Grand Portage mine, stamp and kiln, 30 tons 075 lbs.; Isle Royale mine, barrel and mass, 23 tons 273 lbs.; Albany and Boston mine, stamp, barrel and mass, 8 tons 750 lbs.; Portage Lake district, total 586 tons 975 lbs. .....The richest and principal working portions of the Isle Royale mines, are in the north mine, at and north of No. 2 shaft; in the south mine south of old No. 8 shaft, and in the Mabbs vein, for a hundred feet on either side of F shaft. From the two latter the greater portion of the product may be expected, the Mabbs vein producing the greater part of the mass and heavy copper..... It is a puzzle to the people here what caused the Allouez stock to advance last week. There is no exploration going on, nor has there been for over a year ... At the Kearsarge, late last week, a fine belt of copper bearing amygdaloid was cut in the exploring trench, but the conglomerate had not been found at last accounts.....We saw, this week, a fine piece of copper rock from the Seneca property, but the possessor could not say from what part. It looked as though taken from a vein in the greenstone.....By this afternoon's mail we learn that two of the Keweenaw county mines have declared dividends. The Pittsburg and Boston Company's Cliff mine, has declared a dividend of $60,000, or three dollars per share, payable Feb. 18th. The Central mining company has declared a dividend of $50,000, or two dollars and fifty cents per share, payable April 1st. We should think our ninety-day draft mines would hide their heads in shame at this announcement. ....."Active" is the name of a new company proposed to be organized by James Carson, to work on the north-west quarter of section 7, T, 56, R, 32, or about a mile north of the Calumet workings. The property is well located, is undoubtedly crossed by the Calumet conglomerate, and may be exceedingly rich, but this latter fact is not yet ascertained, and before speculating on what might be done, provided the lode is as rich as at the Calumet, and the mine worked as extensively as the Quincy, it would be as well to explore it, find the lode, and see how rich it it.....The Ontonagon *Miner* Feb. 16, describes the Toltec, Aztec, Ridge, Evergreen Bluff, Ogima, Caledonia, Rockland and Minnesota mines, at more or less length, and says: We have visited nearly all the mines of our district the past week, and can assure our friends East that the working ores on the Evergreen Range have seldom exhibited more mineral than at present. Perhaps the present may not be deemed a very favorable time to institute comparisons between our own mines and those of other districts, or to inquire why it is that with far better prospects than some of the Houghton county mines can show, there is no demand for the stock of our mines, while theirs of much less apparent value, are selling at $10 to $15 per share. The cause for this difference should be known and remedied. We have mines in this county that do not find a place on the stock lists at all, and sell on private account at $4 to $3 per share, but which are intrinsically worth much more than those the market value of which we have given above. A manifest disposition on the part of managers to "boost" their stocks, while others pay no attention to the opinions, good or bad, of operators, will affect advantageously or otherwise market values, still this does not to our mind, satisfactorily account for all the difference we can see.

### Mexico.

A Zacatecas correspondent writes: There is in Fresnillo a college established by the government as a practical mining school for graduates of the Mining College of Mexico. It is now abandoned, and the practical school is located near Mexico, at the great Real del Monte mines. The building here is a fine edifice. It was built as a kind of tax on the Fresnillo company, which constructed it. A manufactory for the producing of sulphurate of copper has been established here for a short time. It can turn out $2,500,000 annually. It now employs one hundred operatives. The material is produced from copper ores existing in Zacatecas, and is used in the extraction of silver from the ores by the fratio process.

## LEAD.

### Missouri.

The *Conservative* (Missouri) says of the mine La Motte: The talk now is that this celebrated and invaluable lead mine has, or is about to change owners. We hope the trade will be consummated. Not that we think any better or more high toned honorable gentlemen will succeed the present proprietors; but that if it falls into the hands of other parties new life and energy will doubtless be infused into the mining business. The amount of rich ore in those mines is inexhaustible. We need more energy—more capital to develope those resources.

### Canada.

Speaking of lead mining at Hastings the Kingston *News*, March 1st, says: The operations of the Tudor Lead Mining company of Boston, which had been temporarily suspended during the early part of the winter, have been resumed under the management of Mr. W. W. Kirkpatrick, who is said to be obtaining good results. The vein cuts the grey limestone which is so largely developed in that region. The gnague consists principally of barytes or heavy-spar, locally known as "lead quartz." The ore has been analyzed by Professor Bell, who obtained about 82 per cent. of lead. It contains a mere trace of silver. The facilities for transportation which are about to be established in connection with the iron resources of this section—to say nothing of the gold—will be of great benefit to the lead mining company.

## IRON.

### Michigan.

The Detroit *Advertiser* says: With the opening of the Sault Canal in 1855 dates the commencement of systematic mining among the immense mountains of ore in our Upper Peninsula. In that year 1,445 tons of ore were shipped to the Eastern market, the Jackson mine commencing the "openings," which still yield with uninterrupted productiveness. In 1858 the gross tons of ore shipped from Marquette were swoolen to 31,185, and in that year the Pioneer Furnace commenced the manufacture of charcoal pig iron, and turned out 1,627 tons of the commodity. The district became popular, new mines and new furnaces were established, and the development of the latent resources of the region continued to make rapid progress. In 1860 the furnaces turned out 5,660 tons of pig iron, while the mines yielded additionally 116,948 gross tons of ore. In 1864 the Marquette mines yielded one-eighth of all the iron consumed in the United States, the ore shipments reaching the unsurpassed aggregate of 245,123 gross tons, while the furnace yield amounted to 13,832 tons of pig. During 1865 financial depression and labor disturbances prevented a very large increase, but the figures of 1866, which have just been published, show that the mines yielded 296,872 gross tons of ore, while the furnace turned out 18,437 tons of pig metal. The richness of the "workings" evidently continues unabated.

## COAL.

### Pennsylvania.

The Ashland *Advocate* says: Several of the coal operators have resumed work during the present week. Bancroft started on Monday; Repplier & Moody commenced on Wednesday. Although wages have been considerably reduced, the resumption of business will be hailed with pleasure by all. Although business has been exceedingly dull for the past two months, Ashland has not suffered to so great an extent as has a number of our neighboring towns.....The Pottsville *Journal* states that Mr. James Savage, late superintendent of the Gilberton company's coal mines, and now in charge of the Lyken's Valley mines, recently furnished for the Gilberton company's new slope and altered a breaker, increasing its productive capacity about fifty per cent. The slope is arranged in a style entirely different from anything of the kind in the region, being constructed so as to bring both tracks to single points at the top and bottom of the slope, and fitting both tracks of the gangways in such a manner as to do away with switches, tongues and movable trucks, which have heretofore been found necessary to fill up spaces. The simplicity of the arrangement—combined with its saving of labor and consequent economy—is a marked feature of the improvement, and parties who contemplate sinking slopes would find it to their interest to visit Gilberton and examine this. It is unquestionably the most simple and economical mining fixture of that character ever introduced into this region.

### Montana.

The Helena *Herald*, Jan. 31, says: We have a reliable communication from Bear City, a mining camp on the Hell Gate river, some forty miles below De Lodge and about a hundred miles from Helena, announcing the fact of the discovery of a good quality of stone coal in that vicinity, and that large quantities have been taken out, and blacksmiths in all that part of the territory have tried it and testify to its excellence, and parties owning the mine propose to load a train on the opening of spring for Helena, in case they get orders or encouragement from parties here desiring the article. If stone coal can be delivered in Helena at $50 per ton, it would in our judgment become a profitable substitute in many cases for wood and charcoal; while of course there will soon arise a demand for this article as indispensable to the business in which citizens are to engage. To the latter class, at least, this news will be hailed with satisfaction.

## OIL.

### Pennsylvania.

O. J. Hollister of Colorado, who recently travelled through the Venango oil region, writes of it as follows: Well, about the oil. It extends along the Alleghany from seventeen miles below Franklin to Tidioute in Warren county, forty-four miles by the railway, which hugs the western bank of the river from Franklin upward; above, in all, sixty miles. The river is crooked, but its general direction is toward the southwest. Five miles below Franklin is the Foster farm, and seventeen below the McMillan, both considered valuable oil properties, and having a producing well or two, but not developed to much extent. Above Franklin as far as Tidioute, forty-four miles, the derricks once used for handling the well-boring tools line the sides of the Alleghany like scattered trees in an "opening," and dot the not unfrequent islands in the stream. On the right bank but little has been attempted beyond the immediate beach. On the left numerous runs open vistas among the low, wooded hills, and on these from seven to seventeen miles back from the Allegheny the great oil fever rose, raged, and ran out. Among these runs the most famous are Oil Creek (Oil City, Petroleum Center, Rouseville, and Titusville,) Pithole Creek (Oleopolis and Pithole,) and Dennis Run, (Tidioute). At the mouth of Oil creek is Oil City, looking as though it had fallen through its own bowels more than once. Venango City is on the opposite bank of the Alleghany, and connected with Oil City by a bridge a thousand feet long; its population is not far from ten thousand. Steamers come to its wharf from Pittsburg, and even ascend much higher when the river is full—about three months of each year. The buildings are of wood, shabby and dirty, fronted on the river by oil sheds a mile long and overtopped by well-derricks. There are huge oil tanks made of boiler iron, some of them of thirteen hundred barrels capacity. Oil Creek is crossed by the railway on a bridge five hundred feet in length. Petroleum Center and Rouseville are on Oil Creek, the former at the mouth of Bennehoff, the latter of Cherry run. The former is still an important oil producing district. Rouseville was named after Mr. Rouse, one of the pioneers of Oildom. He struck the first flowing well in the vicinity, one of those which threw a stream of oil the full size of the bore, about four inches, high above the surface for weeks. The same day it began to flow Rouse came up from the boarding house in the evening with friends, smoking a cigar, to look at it. Accompanying the oil a huge column of gas, so dense that it could plainly be seen, burst from the well, and as Rouse stepped into it, it fired from his cigar, exploded with a tremendous concussion, knocking down and destroying almost instantly everybody within reach. About twenty men were burned. Rouse lived long enough to bequeath his property to Warren county, after suitably providing for his father and liberally remembering some of his friends. The burning well was a splendid, almost terrible sight, for five days and nights. The four-inch column of oil, thrown nearly two hundred feet in the air, and then breaking and falling like an artificial fountain, was a pillar and a shower of fire, falling into a lake of fire, the outlet of which far down the river was a moving sheet of fire. People came from everywhere but Pike's Peak to see it. At last a crazy man loaded

an old sled with wet manure, attached a long pole to it, and backing it on the well put out the fire. This scene was repeated afterwards in other parts of the country, except that men were not destroyed. Titusville is seventeen miles above Oil City, on Oil creek; has about twelve thousand inhabitants, a fine site and splendid water power, and is connected by rail with Corry, the junction of the Erie & Philadelphia and Atlantic & Great Western roads. It was formerly an oil town, but its production has mostly ceased, and its population is decreasing in consequence. A railway down the creek to Oil City is nearly completed. Ten miles above the mouth of Oil creek on the Alleghany, at the mouth of Pithole creek, is Oleopolis, a place of litsle size or importance. Pithole itself is seven miles up the creek from the river. It owes its existence to oil, and grew to a population of 6,000 in three months. Its oil production has greatly fallen off, and the town is being abandoned. Wells which formerly flowed from two thousand to three thousand barrels a day, now scarcely pay expenses, and yet the creek turns out four thousand barrels of oil daily. The sinking of torpedoes deep in the wells and exploding them has been found to largely increase their yield, probably by loosening the surrounding country. New wells are occasionally struck, too, and altogether the inhabitants who have neither sold or made "strikes" bet high yet on Pithole. Two miles above the mouth of Pithole all signs of oil cease for twenty-four miles. Here we strike Tidioute, at the south of Dennis run. Among the old-fashioned farms are occasional deserted plantations. Of these the owners have made fortunes in oil and are doubtless gone to the cities to "splurge" for the general amusement. On the opposite bank of the Alleghany from Tidioute may be seen from the cars the noted Economite wells, so called because they belong to the Economites, German Communists, situate somewhere below Pittsburg. One of them was the first successful well in the country. Oil was struck in it in 1858, and it has flowed steadily since six barrels a day, turning its owners by judicious, or perhaps lucky handling of the oil, $30,000, with no expense. It is but ninety-two feet deep at that. It is not a little curious that oil in this neighborhood is struck between 120 and 250 feet from the surface, while at Pithole they have to go 500 feet on the average, and at Oil creek 625. The other Economite well is near the first, and the two together now produce 350 barrels a week. This well has the only new derrick I have been able to see from the cars. Tidioute consists of one street along the river, nearly two miles in length. It has been two-thirds built within nine months. The wells are a mile or two up Dennis run, and now produce 4,000 barrels daily. The district is comparatively new The discovery of oil in this region, the fearful speculation incident thereto, and the fortunes made and lost, the towns and railroads it has given rise to, the new comforts it has added to the world's possessions, and the trade it has created, are too much of a story for a letter. A gentleman in Franklin said to me that his company had spent $336,000 and owed $27,000; and if they could now dispose of all they owned in Oildom for enough to pay their debts, they would be satisfied. No difficulty is now found in boring an average oil well for $2,500. Yet $40,000 has frequently been expended in doing it. The greatest daily oil production was 20,000 barrels. At present it is about half that; 3,000 barrels from Dennis run, 4,000 from Pithole, and 3,000 from Oil creek. Time was when barrels were worth $2 50 each, and then a barrel of oil was worth only "two bits." The wells flowed into the creeks and raised the rivers. Time was when oil brought six to ten and even as high as fourteen dollars at the wells. Now it only brings two. People say the low price explains the decrease in production. Probably. It is estimated by intelligent men that three to four thousand wells have been bored first and last, and that *five* out of each *hundred paid*. About two-thirds of these are still in operation. The best wells now pump 300 barrels a day. As to the manner of boring the wells, a cast-iron stove pipe is driven down to the rock, and then a four-inch hole cut with various tools through the rock until oil is struck or the hope of it is given up. The derricks which dot the oil country, and of which everybody has seen pictures, are for hauling up the tools to clean out the debris or rubble. They used to be twenty-eight feet high, now they are forty-eight feet. The railroads which owe their construction to oil, are the Oil City & Meadville, 36 miles long; Oil Creek, 33 miles, from Titusville to Corry; New Farmers, seventeen miles, Oil City to Titusville; Warren & Franklin, sixty miles, Franklin to Irvineton Station on the Erie & Philadelphia, Warren being seven miles east on the latter road; Reno, Pithole & Oil Creek, (Culver's) completed to Plummer, nineteen miles; Franklin & Jamestown, thirty-one miles; Alleghany Valley, from Oil City to Pittsburg, completed sixty miles and under contract to be finished within ten months, whole distance 135 miles.

## Canada.

The Petrolia *Register*, Feb. 16, says: A little over a year ago this spot was entirely covered with dense woods—impassable roads. Now how different! At first excitement ruled the hour. Oil was worth eight and ten dollars per barrel. A few wells had been put down with complete success. Not a failure had occurred. To own so many acres of land in the immediate vicinity of a development, was to be the possessor of so many thousand dollars, exchangable at the option of the fortunate individual. Hundreds of acres changed hands daily. The land was all bought up, in and around Petrolia, for a distance varying from one to three miles. At the least calculation ten thousand acres were purchased at prices ranging from thirty to one thousand dollars per acre. A few parcels sold as high as two thousand dollars. No sooner was a sale perfected than test wells were at once put down. The experiment was attended with various results. East of the plank road failure marked every attempt at development. North of the Jackson well the territory proved unproductive South and west of the Crescent company's wells, which were the first paying operations, the wells were more uniformly successful. One whole year of persevering labor develops the following results: On the aforesaid ten thousand acres of land about two hundred wells have been sunk. These have been the soundings by which the actual oil territory, so far developed, has been discovered and mapped out. This has been found to be embraced in the narrow limits of not more than one thousand acres. The extreme boundaries are marked by the Hall and Wilmot wells on the south and east, the Ingersoll well on the southwest—the Shoemaker and King wells on the west and northwest—and the Jackson well on the north. Within these points there are about forty wells, ranging from thirty to three hundred barrels. The remainder, with but few exceptions, are good paying wells, with oil at anything like a reasonable price. Another subdivision of this area, including the most valuable locations for future operations, narrows it down to something near five hundred acres.....Another big well has this week been added to the number that are already pouring forth little rivers of oil. This is the Red Wing No. 3, situated a few rods west of the Greenfield well, on the Minner farm, which is a portion of lot 12 in the tenth concession. It was drilled in fourteen days to the depth of three hundred and seventy-four feet. It has been pumping to the present time (Feb. 14) one and a-half-days, and has yielded about 250 barrels per day. Messrs. Thomas, Mason and Buffington are the fortunate owners.....The Hurontarie well continues to yield twenty-five barrels a day, and has proved one of the steadiest producers. There are at present twelve large tanks upon the ground, containing about thirty-five hundred barrels, which the company have determined upon keeping for a better market.

## New Zealand.

A week or two ago, says the *Hawkes' Bay Herald*, Mr. Preece completed the purchase of the oil springs on account of an Auckland firm. A friend and I went to see them; they are about twenty or twenty-four miles from Waiapu, and a very pleasant ride it is to them, as you go through some pleasant country up the Waiapu Valley. Two surveyors have been very busy surveying the land round the springs. The block purchased contains 900 acres. On arriving at the springs we dismounted, struck a match, and lit the oil on the surface of the water, which burnt steadily until blown out by the wind. In some places where the oil was not quite so thick, it would only splutter, and then only when the match was held close to the oil. One place in particular we remarked, where the water was bubbling up round a large stone in the centre of the creek. No appearance of oil was to be seen, but when a match was applied a flame about eighteen inches high shot up round the stone, and burnt for a considerable time. We concluded that it was the gas escaping. A few days ago a half-caste named Hays found another oil spring at a village named Paporuo, between Awanui and Tuparoa, about one mile from the beach, which will be much more handy than the one Mr. Preece has purchased, it being about five miles inland, with rather a bad road to get to it. There is every reason to believe that oil will be found here in great quantity.

## Italy.

Petroleum is said to be abundant in Italy, and remarkably pure. The city of Genoa was long lighted with crude mineral oil. In the provinces of Modena and Parma, it issues from the mud volcanoes, or from parts adjacent. A Mr. Fairman, of Pisa, has obtained from the Government the exclusive right of search in the rich oil districts of Reggio and Modena, besides an increased duty on the importation. He is now offering privileges on liberal terms to English capitalists. The United States consul at Ancona (Mr. Charles Ribighini), has lately placed upon the English market a very fine oil found in Southern Italy, which he calls from the place of its nativity "Toccolina." It is described as perfectly limpid, of a bright yellow, without smell, and of a gravity of 80° to 85°.

# MISCELLANEOUS.

## Minnesota.

State Geologist Eames, in his report on Minnesota, says: "Leaving gold and silver, however, out of the question, the resources of the State are yet incalculable, taking into view the iron, copper, tripoli, slates, the uses to which the talco slates may be put, such as the manufacturing them for whet and hone stones, granite, limestone, marls, salt lakes and springs, all of which abound in different localities in Minnesota; add to these a soil and climate scarcely equalled, she may be justly proud of the rank she is destined to take with her sister States of the Union. If not at present able to add coal to the list, she has immense peat beds that will last for ages, both for manufacturing and domestic purposes, which the very effective machinery now in use will soon make available for fuel."

## Louisiana.

A city paper mentions that the American Bureau of Mines of this city has just made a report of great scientific interest relstive to an enormous deposit of rock salt on Petit Anse Inlet, Louisiana. One hundred and forty-four acres have been proved to be underlaid by massive rock salt, the limits of which, as to thickness, have not been reached, pits having been sunk in it to the depth of forty feet from the top of the salt without showing signs of approaching the floor. These deposits are about to be worked by the Louisiana Rock Salt Company, organized for the purpose, and the results promise to bring about a revolution in the salt trade of this country. At present our principal salt works are at Syracuse, where salt is made by evaporation, and at Saginaw, Micnigan. But most of the salt consumed in the United States is imported from Liverpool and Turks Islands. A promising future, therefore, awaits this enterprise if properly conducted.

## Canada.

The Keystone *News*, March 1st, says: "Mr. Meves, of Madoc, states that iridium exists along with the other materials with which gold has been found in the Richardson mine. The presence of iridium is not mentioned in the reports of Dr. Hunt and Mr. Michel; but as Mr. Meves has obtained his specimens quite recently, they may have been taken from different parts of the vein or "pocket," as this deposit has been called. Iridium is one of the rare metals, and is of extreme hardness. It was found in Californian gold, and its presence in the gold coined at the United States mint caused the destruction of several valuable dies, and from this led to its detection and removal. The same substance is found in the gold of the Chaudiere, as also platinum and an alloy of osmium and iridium, named iridosmine. The latter is very hard and durable, and is put to a practical use in pointing gold pens and in jewelling. Platinum, it need scarcely be remarked, is a most valuable metal, and if found in the gold region here, as is quite likely, would constitute of itself a valuable discovery. We mention this to encourage explorers to have their eyes open to other things besides gold. The prediction may be ventured that iron, lead, copper, silver, antimony, bismuth, platinum and the rarer metals, will be discovered by intelligent prospectors in the Hastings region. The humbler substances, as soapstone, serpentine and crystalline limestone, perhaps marble as fine as that of Carrara or the Greek Islands, may be found on the outskirts of the gold region. Such a tract of country might also be expected to supply precious stones, as chalcedony, amethysts, and other varieties of colored quartz, jaspers, and even diamonds.

### Improved Roasting Furnace.

We have been shown, says the Austin (Nevada) *Reveille*, the plan of a new roasting furnace, or rather of what is claimed to be an improvement of the ordinary reverberatory furnace—a caveat for which has just been filed by Mr. John Agrell, formerly of this city. The proposed improvement consists in a revolving hearth and mechanichal stirrers of the pulp. The top of the furnace is dome-shaped. The revolving hearth is made of iron plates lined with brick; the hearth is placed on iron rollers, which are securely geared to prevent the hearth sliding. A shaft extends diagonally over the hearth, to which are attached several rakes for stirring the roasting ore; this shaft is stationary, and is made hollow for the purpose of allowing a jet of water or steam to pass through it continually. The revolution of the hearth brings the pulverized ore perpetually in contact with the rakes, by which means it is turned over and over and every portion of it is exposed to the flame and effectually chloridized. After the roasting of the ore is completed it is discharged through a sliding door in the hearth. Mr. Agrell claims that his improvement provides an efficient and cheap mode of roasting ore; and that the destruction of the rakes by the action of the gasses will not involve greater expense than is now incurred by the waste of hand rakes. The rotary motion of the hearth, bringing the pulp incessantly against the stationary rakes, will render the action of the flame equal upon the whole mass, and will prevent the occurrence of lumps of raw ore. It is further claimed that by the use of this furnace there will be a great saving of labor, as one man can easily attend to four, and that the ore will be roasted with very little expense above the cost of fuel. According to the estimates of the inventor a furnace constructed on his model would not cost more than $1,000, and the ordinary furnace may be converted into a self-roaster at a moderate expense.

AMERICAN
# Journal of Mining.
[ILLUSTRATED.]

GEORGE FRANCIS DAWSON,
EDITOR

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☞ Correspondents, exchanges and others addressing us should be *extremely careful* to write "JOURNAL OF MINING," instead of "MINING JOURNAL," to ensure safe carriage.

NEW YORK, SATURDAY, MARCH 9.

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## TAKE NOTICE.

That on and after the 30th inst., the AMERICAN JOURNAL OF MINING *will be enlarged to* TWENTY PAGES. Its rapidly increasing circulation and advertising patronage fully justify this step, which will doubtless be as acceptable to our many subscribers as it is to us, as we shall thereby be able to give to them each week a greater number of original papers, and other interesting and valuable reading matter. On that date the JOURNAL will enter upon its Third Volume; and we hope by that time to receive a large accession of NEW subscriptions. We are glad to know that all our old subscribers take so lively an interest, as their numerous letters prove, in the unexampled prosperity of this paper, and we hope that all our readers will show it to their friends, and get *them* to subscribe for the coming year. We wish them to work for the JOURNAL, so as to enable us still farther to increase our sphere of usefulness. The more they do for us, the more we shall do for them, as it is our purpose to keep on enlarging and improving the JOURNAL, just as fast as its increasing patronage shall warrant it.

## HOW TO EXTRACT ALL THE GOLD AND SILVER FROM THEIR ORES.

THE TRUE MATRIX—GOLD IN CHEMICAL COMBINATION WITH SULPHURETS, ETC.

America is blessed beyond precedent in the immensity of her stores of mineral wealth, and in having such intelligent, industrious, hardy, indomitable men to discover and drag out her latent treasures to the light of day, and pour them into the lap of the Nation; yet so short a time has elapsed since the discovery in California of gold—and still less since anything like system in the working of either our gold or silver deposits, was adopted—that our nation is yet in the infancy of mining. So also in metallurgy. And although it is of great importance that the size, variety, and structure of these deposits shall be speedily as possible determined by development and otherwise, so that we may awake to a proper appreciation of these resources, yet there is a subject of even greater importance to us than this. We know we have the gold and silver in the rock, but *how to get it all out*, is one of the greatest questions of the day. We all know that silver is found in a pure or "free" condition, and also in chemical combination with other minerals, when it is called sulphuret, bromide, chloride, etc., of silver. We know, too, that "free gold" is found in large quantities in quartz ore, and other rock, and also in iron pyrites or sulphurets. Scientific men, whose attention has been long concentrated upon the subject, are now approaching another conclusion, viz.: that *gold also exists in chemical combination with the sulphur*. This has not yet been actually determined, but (as will be seen by perusal of a series of papers on "The Desulphurization of Gold and Silver Ores," written by a distinguished chemist for the JOURNAL OF MINING, and which will shortly appear,) it is considered probable, from the fact that two metals "very similar to gold in their affinities, and hitherto only found in their metallic state," have recently been discovered in chemical combination with sulphur. Assuming, then, that this probability may soon become a demonstrated fact, the question resolves itself into these: How to extract:

FIRST—All the free gold and silver from the rock.

SECOND—All the free gold from auriferous sulphurets.

THIRD—All the gold in chemical combination with sulphur.

FOURTH—All the silver in combination with its various affinities.

These are questions of the greatest possible interest to the miner, the millman, the metallurgist, and indeed the Nation at large—inasmuch as, by increasing the yield of precious metals, we increase our capacity for paying off the National Debt, because we augment the value of property in proportion to the additional production or supply of precious metals, and a man can better afford to pay a five per cent. tax upon property worth $10,000, than a ten per cent. tax upon property worth but $5,000. Aye, and it is safe to assert, that few would object to continue the payment of even the ten per cent. tax on property that has doubled in value. Hence the satisfactory solution of these questions would be a large item, either in lessening the annual burden of taxation, or in bringing nearer the day when the debt shall have been swept away. Thousands of active brains are now in this and other countries endeavoring to solve these problems, and so much labor in this direction must, before long, be rewarded with adequate success. Hundreds of millions of gold and silver have already been added to the circulation of the country, and hundreds of millions have already been utterly lost. Fortunately, however, many of the quartz miners of the Far-West came to the conclusion some years ago that the sulphurets are worth saving, and have concentrated and piled them away, waiting for the coming process that shall enable them to secure the hidden gold—and in the meantime, perchance, exposure to the atmosphere will reduce to docility some of these rebellious pyrites. Recent discoveries in various parts of the Far-West, of great ledges or true veins (as well as masses and disseminated particles) of auriferous sulphurets of iron—veins composed almost *entirely* of pyrites, with hardly any quartz—extraordinarily rich in gold, are likely to give fresh impetus to the investigations of both scientists and such as claim to be simply "practical" men, into the best methods of disintegration and desulphurizing, and have given prominence and force to the new theory, that the true matrix of gold, and perhaps silver, is the sulphuret.

## DEEP MINES OF THE WORLD.

The committee on the great Comstock adit, in its very interesting report to the Nevada Legislature, published in our "Mining Summary," this issue, states that "this tunnel will demonstrate the continuation of the Comstock lode to a depth of 3000 *feet—a greater depth than has ever yet been reached in any vein in the world.*" A proper regard for Truth will not permit us to allow this doubtless unintentional mistatement to go before our readers uncontradicted. It is our impression that in Mexico at least *one* silver mine has been worked to that depth; and at Kuttenberg, Bohemia, the Eselchact mine, believed to be the deepest in the world, is no less than 3778 feet below the surface. That settles the matter at once. But while we are writing on the subject, we may as well mention a few other mines noted for their depth, of which we have recently read, viz.: The Dunkenfield coal mine, Cheshire, England, 2504 feet deep; another at Pendleton, near Manchester, 2504 feet; the bore of the Linden, Prussia, salt works, 2231 feet; the Tresavean copper mine, England, 2112 feet; several coal mines at Durham, England, 1773 feet, and thereabouts; the Valenciana, Mexico, silver mine, 1686 feet; and the Santa Rosa silver mine in Sinaloa, Mexico, some 1200 feet. It may, however, console our Nevada friends to learn that the Eselchact mine is not now accessible, and that unless a deeper one can be found when their great adit is completed, they will justly claim to have attained a greater depth than has been reached on any vein (being worked) in the world.

## TO OUR SUBSCRIBERS.

As a large number of subscriptions to the JOURNAL OF MINING are about to expire, and it will greatly facilitate the making out and classification of our lists of addresses in time for Volume III—*when the paper will be enlarged by the addition of four more pages*—we trust that subscribers will at once send on their remittances for the ensuing year. For the information of those who have not yet subscribed, we will state that the price will remain as heretofore, viz.: $4 00 per annum.

## Death of the Tariff Bill.

How the Tariff Bill was killed at the close of the last Congress, is thus described by the *Tribune's* correspondent: "During the whole morning those specially interested in the tariff were busy and active, canvassing and devising compromises in order to save the bill. Tremendous efforts were made to unite the various interests involved, but to no avail, as was proved on taking the vote. Iowa with her wool, Maryland with her coal, Pennsylvania with her iron, and Missouri and Indiana with their grain and minerals, were all at loggerheads, and could agree on nothing. Morrill's motion to suspend the rules required a two-thirds vote, and was lost by a vote of 105 Yeas to 64 Nays, 112 votes being necessary."

### The Sutro Tunnel.

By telegram from San Francisco we learn that the Savage Mining Company has decided to subscribe $150,000 to the stock in this noble enterprise. Some time since the Gould and Curry subscribed $100,000, the Hale and Norcross $100,000, and the Empire $15,000, so that, so far as heard from, $365,000 has been taken of the $500,000 that the great capitalists of New York itself must be subscribed for by the Comstock Mining Company before they "toe the mark" to the tune of $4,500,000 more. We are waiting to hear from the Yellow Jacket, Crown Point, Chollar-Potosi, Spanish, Ophir, and other companies.

### Geological Survey of Far-Western Mineral Districts.

The last Congress provided for a thorough geological survey of all that great mineral region lying between the Rocky Mountains and Sierra Nevada, and the expedition will be protected by a special military escort. Senator John Conness is entitled to the credit of securing the passage by Congress of this eminently wise measure, which will, without doubt, repay the Nation more than a thousandfold for the necessary outlay in money.

### MEETINGS.

Erie Lead Co., at office of Messrs. Wheeler & Armstrong, 54 Wall street, March 15, 12 M.; National Mining and Exploring Co., at 114 Pearl street, March 14, 12 M.; Franklin Iron and Coal Co., at 42 Broadway, March 13, between 12 and 3 o'clock; Pontiac Mining Co., at 11 Change avenue, Boston, March 12, 2 P. M.; St. Louis Copper Co., at 58 City Exchange, Boston, March 12, 2 P. M.; Phœnix Copper Co., at 13 Doane street, Boston, March 18, 12 M.; Hungarian Copper Co., at 58 City Exchange, Boston, March 19, 2 P. M.; Fetherick Mining Co., at 40 State street, (Room 20,) Boston, March 19, 3½ P. M.; Consolidated Mining Co. of North Carolina, at 16 South street, Baltimore, this day, 1 P. M.; Tiger Gold Mining Co., special, at Harmony Hall, Philadelphia, March 13, 2 P. M.; Superior Mining Co., (L. S.) at 71 Broadway, N. Y., March 12; Rockland Mining Co., at 71 Broadway, N. Y., March 13.

### DIVIDEND.

West Castleton Railroad Co. and Slate Co., at 41 Kilby street, Boston, now due, payable on demand.

## Scientific Meetings.

### GERMAN POLYTECHNIC ASSOCIATION.

MACHINES FOR MAKING FISH-HOOKS AND "HOOKS AND EYES."

This Association held its regular weekly meeting on Friday, March 1st, 1867, C. Burchardt, Esq., in the chair.

Mr. HUBBE gave a description of a machine to make fish-hooks, illustrating the same by sketches and samples, which latter were taken from the machine while in operation, thereby showing the different states of completion of the manufacture. These are about the following: 1st. The steelwire is being straightened; 2d. It is cut off to the right length; 3rd. The hook is put on by means of a chisel; 4th. The eye is bent on; 5th and 6th. The hook-end is flattened; 7th. The flat end is cut to a point by means of a pair of nippers; 8th to 11th. The point is smoothed and finished by a number of milling tools, and, lastly, the hook is bent to its proper shape.

Mr. HERMANN then referred to a similar machine on which "hooks and eyes" are manufactured. In making the eyes the wire is cut off to its proper length; then the two small eyes are bent on, and at last the big eye is bent to give it the proper shape. To make the hook it takes one more operation, because the wire has to be bent twice after the small eyes are formed, to form the proper shape of the hook.

After some discussion upon the subject the question was presented to the meeting: How to avoid the bolts which hold down the cover of a hanger, in case a heavy strain bears upon them?

Messrs. HILDEBRANDT and HUBBE mentioned several designs, in which the cover is held down by keys, when the meeting adjourned.

### AMERICAN INSTITUTE—POLYTECHNIC BRANCH.

In consequence of the monthly meeting of the American Institute on Thursday evening, the Polytechnic branch was not in session.

## Correspondence.

*[To insure insertion of Correspondence in our columns the full name and address of the writer must be given.]*

### The "Annita" Again—An Error of Date—The "Blackmailing" Charge.

EDITOR JOURNAL OF MINING:

SIR—Permit me to call your attention to an error in the printing of my letter to you, dated February 21st. Where it reads: "December, 1866," it should have been, "December, 1865;" and, though not material, I wish to be first to correct the same in case it is questioned by others. And I would also state that, when I wrote that "I was Recorder from May 4, 1857, to March, 1866," I should have written that "I left Crescent City in Dec., 1865," and left a deputy to fill my place until 1866. (March.) This, of course, amounts to nothing, unless assisted by other correspondents, and I ask, in that case, to be set right in your columns. I cannot, however, pass unnoticed the editorial remarks in regard to "blackmail" imputed to me, and as you think it fair to mention such reports—perhaps to my injury among those with whom I have only partial acquaintance—I consider it equally fair to state, that I am certainly to be charged with such attempts, if an earnest endeavor to induce the Wall street company to purchase from me 200 shares of the stock issued by others, and sent to me by Brackett, *in lieu* of cash, and as *part payment* of the original interest I represent in the location—be so construed, but not otherwise; for such has been the extent of my efforts, now claimed to be an attempt to "blackmail," an imputation which, with those who know me, has no impression. And until the statements I have placed my name to, with your complete and truthful *expose*, are at least proved to be false, I think a discerning public can see the absurdity of such a charge against me, and will pass it as simply ridiculous. BENJ. REYNOLDS.

PHILADELPHIA, March 6, 1867.

### The "Presentation" in aid of the Destitute and Orphan Sons of our Volunteer Soldiers and Sailors—Is it a Humbug?

EDITOR JOURNAL OF MINING:

SIR—I enclose you a newspaper slip, relative to "A Grand Military Concert and Presentation," to be given at the N. Y. State Arsenal, April 4th, "in aid of the Destitute and Orphan Sons of our Volunteer Soldiers and Sailors." You will do me a great favor by informing me if this is one of the New York humbugs, or is it genuine? A lot of us want to send for some tickets, if all is correct. Please ascertain if it is not too much trouble. Let me know soon, and oblige C. D.

TREVERTON, Pa., March 3, 1867.

It is impossible for us to say whether this is a humbug or not. If the profits are to be truly devoted to the orphan sons of our gallant defenders, well and good; but as a rule we don't believe in raffles or "presentation schemes," and never yet knew of one that was so conducted as to give general satisfaction. This particular scheme does not seem to be endorsed by any of the Generals who appear to have endorsed the *cadets* of the Institute—and who "Kennedy & Co." are, we do not know.

### Drawing Pipe from Abandoned Oil Wells.

EDITOR JOURNAL OF MINING:

SIR—Having had much experience in boring wells, I desire to ask your numerous readers in the oil districts, if they consider it any object to have the large pipe drawn from abandoned wells; whether drawn pipe can be used over again, or sold at a figure to warrant the undertaking?

NEW YORK, March 2, 1867. WALTER HYDE.

☞ An essay of interest to microscopists has been published by M. Ronget, in which the author describes several photographs which he has taken of magnified specimens of muscular tissue. He believes that the contractile elements of muscular fibres are disposed in coils, but that this is not the case in the smooth muscle. Much, he says, of the structural features of muscle depends on the direction in which the tissue is torn, and on the mode of preparation.

## Original Papers.

[TRANSLATED FOR THE JOURNAL OF MINING.]

### AMALGAMATION—No. 3.

BY J. H. TIEMANN, M. E.

The degree of temperature is determined by the appearance of the quicksilver, from which a sample is carefully selected each day. When the process is working well, the quicksilver has a dull look, does not separate readily, and the surface is covered with a fine grey dust. If it is very bright, or if it separates easily (flours) the heat was not sufficient, and more magistral must be added; if it is covered with a grey, wrinkled skin, and separates into inert dirty globules, the heat was too great, and the mass must be cooled by the addition of lime. Further, if the quicksilver is thick and stiff, more must be added, and if it does not become stiff after a certain time, without, however, denoting a want of magistral, there is a lack of salt, and more must be added. In this way the process is continued, adding magistral, lime or salt, as needed, till the operation is completed. There is, probably, no metallurgical process which requires so much and such constant attention. The trial test of the amalgam is very easy in the hand of an expert, but it requires long practice, perfect calmness and quickness of vision. Between the first and second addition of quicksilver there is usually a period of ten, and sometimes twenty days; the second addition is equal to about one-third of the first. This is continued from time to time with intervals of several weeks till, as the Americans express it, the heap capitulates, that is, when no more silver can be extracted. This may require two or three months—according to whether the additions were judiciously made and the weather was favorable. By this time about three pounds of quicksilver have been added for each mark (8 oz.) silver, in order to render the amalgam more fluid that it may be more easily separated, about 1½ pounds more quicksilver for each mark silver is now added. The separation of the amalgam is effected in settlers with stirrers. The coarser particles of dirt and sand are washed by hand in shallow troughs. More quicksilver is then added, washed in clean water, and the scum removed from the surface of the amalgam with woolen cloths till it has become perfectly bright. It is then filtered, first through canvas and afterwards through fine linen, and the amalgam is kneaded into small pyramids. These are placed on a perforated iron plate, which is placed over a vessel filled with water, and covered by a copper vessel. Hot coals are placed around the upper vessel and the quicksilver distilled. The remaining silver is perfectly fine. The amalgamation in heaps varies in different places. In cold regions the mass is warmed in furnaces, and in some places iron plates are introduced into the heap to lessen the loss of quicksilver. This process may do very well for South America, where the climate is generally favorable, where there is plenty of space, and where the erection of machinery is attended with considerable expense. But it requires a great deal of time, and the loss of quicksilver is eight or twelve times as great as in the European process, and the extraction of the silver is very incomplete, rendering it necessary to smelt the tailings. The amalgamation in kettles was introduced by Alonzo Barba, and served as the foundation for the European process. It is still sometimes used in South America. The vessels are of wood, with copper bottoms, which are set over a slow fire; 150 pounds of ore, previously mixed with salt, is put into each. Water is added till the mass has the consistency of thin paste, and about six to seven times as much quicksilver is added as there is silver in the ore. The whole is stirred from time to time with a wooden stirrer, and samples of the quicksilver taken as in the amalgamation in heaps. The fire under the kettles is kept very low, and at times allowed to go out altogether. The process requires at most two hours. Magistral is sometimes, but not often, used in this process, as it destroys the kettles. This process is much quicker, and is accompanied with very much less loss of quicksilver than the amalgamation in heaps. But it is very little used, for the reason that the residue is too rich in silver. Only very rich ores are treated in this manner, the tailing being either amalgamated

in heaps or smelted. The experiments made in Hungary, Saxony and Bohemia, have shown, however, that the amalgamation in kettles, when carried on with sufficient care, is far more profitable than the amalgamation in heaps. Amalgamation in barrels differs from the American process in extracting the silver more quickly, and with much less loss of quicksilver, and in requiring a great deal more machinery. The process varies, depending upon whether ores, copper matt, metals or black copper, are to be amalgamated. The stamp, or pulp ore, is mixed with sulphuret or sulphate of iron, if not naturally pyritous, and then with salt. The process is divided into

*a* Roasting in reverberatory furnaces.

*b* The separation of the lumps which, after picking out the pieces of mortar, etc., are again pulverized, mixed with two per cent. of salt and roasted.

*c* Sifting—the mass is divided into fine and coarse; the latter is treated in the same manner as the lumps.

*d* Grinding—the fine ore is ground in stone mills and then bolted.

*e* Amalgamating, the sifted ore is put into revolving barrels, at first only water, and then the iron plates are put in. After a sufficient time, when the mass has reached the proper consistence, the quicksilver is added. After the silver has been extracted, the mass is diluted with water to allow the quicksilver to settle, which flows out through the bunghole.

*f* Pressing the quicksilver in leather bags.

*g* Distilling the amalgam, either in retorts or over water as before described. The residue is more or less impure silver, and is called "plate-metal."

*h* Refining the plate-metal, either by repeated smelting, cupelling with lead, dissolving in sulphuric acid, or simple fine burning.

*i* Washing the residue in settlers with iron stirrers, the remaining quicksilver and amalgam settles to the bottom.

*k* Utilizing the amalgam from the settlers. This amalgam cannot be added to the first, as it is very impure. It is distilled by itself, and the metal is either sent to the smelting and refining works, or it is simply smelted with glauber salt and potash, and the resulting alloy of copper and silver is sent to the mint.

*l* Utilizing the amalgam liquor for the manufacture of glauber saults, manure, etc.

The combined American and European amalgamation is used at Poullaouen, in Bretagne, where it was introduced by Mr. Junker for the amalgamation of some of the Huelgoat ores.

[TO BE CONTINUED.]

## MARKET REVIEW.

FRIDAY EVENING.

**Gold and Silver Stocks.**—An advance will be noticed in many stocks. The market was quite firm to-day.

| | March 1. | | March 8. | |
|---|---|---|---|---|
| | Offered. | Asked. | Offered. | Asked. |
| Alameda | .... | 5 50 | 6 25 | 6 50 |
| American Flag | 1 15 | 1 40 | 1 10 | .... |
| Atlantic and Pacific | 2 00 | 4 00 | 2 25 | .... |
| Bates & Baxter Gold | 1 50 | 2 20 | 1 70 | 1 95 |
| Benton Gold | 1 00 | 1 20 | 1 00 | .... |
| Bobtail Gold | .... | 3 00 | .... | 3 00 |
| Boscobel Silver | .... | 5 00 | .... | 4 75 |
| Bullion Consolidated | .... | 1 50 | .... | 1 50 |
| Burroughs Gold | .... | 40 | .... | 50 |
| Central Gold | .... | 6 | 6 | .... |
| Crozier Gold | .... | 13 | .... | 14 |
| Columbian G. & S. | 1 98 | 2 00 | 2 45 | 2 50 |
| Consolidated Colorado | 5 | 10 | 4 | 8 |
| Consolidated Gregory | 12 45 | 12 50 | 11 50 | 12 00 |
| Corydon | 10 00 | 16 00 | .... | 6 00 |
| Des Moines Gold | 2 47 | 2 48 | 1 00 | .... |
| Downieville Gold | .... | .... | .... | 10 |
| Eagle Gold | .... | .... | .... | .... |
| Gilpin Gold | .... | 15 | .... | 3 00 |
| Gold Hill | .... | 3 00 | 3 50 | 3 90 |
| Gunnell Gold | 3 95 | 4 10 | 4 00 | 4 75 |
| Gunnell Union | 97 | 1 02 | 50 | 54 |
| Grass Valley Gold | .... | 54 | .... | .... |
| Holman | 1 70 | 1 75 | 5 | .... |
| Hope Gold | .... | 25 | 25 | 70 |
| Knickerbocker | 50 | 60 | 50 | .... |
| Keystone Silver | 5 | 7 | 5 | 7 |
| Kipp & Bucil Gold | .... | 80 | 50 | 60 |
| La Crosse Gold | .... | 80 | 50 | 70 |
| Liebig | .... | 1 00 | .... | .... |
| Liberty Gold | 7 | 9 | 7 | .... |
| Montana Gold | .... | 45 | 30 | .... |
| Mill Creek Gold | .... | .... | 5 | .... |
| New York | 1 23 | 1 40 | 1 10 | 1 25 |
| Nye Gold | .... | 8 | .... | 8 |
| Pahranagat Central Silver | 1 70 | 1 80 | .... | .... |
| People's G. & S. of Cal | .... | .... | 1 00 | 2 00 |
| Quartz Hill | 4 55 | 4 60 | 4 05 | 4 10 |
| Reynolds Gold | 5 | 6 | 5 | 10 |
| Rocky Mountain Gold | 1 00 | .... | 1 00 | 1 50 |
| Smith & Parmelee Gold | 6 50 | 6 75 | 6 00 | .... |
| Sensenderferier | 29 00 | 30 00 | .... | 30 00 |
| Symonds Fork | 1 60 | 1 90 | 1 50 | 1 70 |
| Texas Gold | 15 | .... | 20 | 30 |
| Yellow Jacket | .... | 10 | .... | 7 |

At the first board the following were the sales: Columbia Gold and Silver, 100, b.3, and 100, s.3, at $2 50; Desmoines, 500, at $1; Gold Hill, 100, at $3 75; Gunnell Union, 200, at 54; Smith & Parmelee, 200, at $6; Alameda Silver, 100, at $6 30. At Second call, 200 shares of Boscobel sold at $4 50; 200 Columbia G. and S., $2 50; 1200 Consolidated Gregory, at $10 95@11 35; 1200 same, s.3, $10 95@11 40; 100 same, b.3, at 11 20, and 100, b.30, same price; 100 New York Gold, at $1 25; 400 Quartz Hill, at $4 10, 300 same, s.3, at $4 10, and 100, b.30, $4 20; 300 Gunnell Union, b.5, at 54; 1100 Smith & Parmelee, at $6 05@6 20.

The following were the sales at the second board: Columbia Gold and Silver, 100, at $2 65, and 100 same, s.3, at $2 60; Consolidated Gregory, 200, at $11 50@11 60; 200 same, b.30, at $1 70 @11 90; 100, b.4, at $11 70; 100, s.3, at $11 60; Desmoines, 600, at $1; Hope Gold, 500, at 50c.; Quartz Hill, 500, at $4 05; Alameda Silver, 200, at $6 45; 100, b.3, at $6 50, and 100, b.10, at $6 60; After call, 400 shares of Consolidated Gregory sold for $11 50, and 300 Gold Hill, at $3 35@3 50.

| **Copper Stocks.** | March 8. | |
|---|---|---|
| | OFFERED. | ASKED. |
| Canada Copper | 50 | 10 |
| Charter Oak Copper | 1 35 | 1 40 |
| Copper Falls | .... | .... |
| Davidson Copper | 95 | 1 00 |
| Evergreen Bluff Copper | .... | .... |
| Hilton Copper | 1 00 | .... |
| Knowlton Copper | .... | 5 00 |

200 shares of Davidson sold at first board to-day for $1.

At the second board, 100 shares of Charter Oak sold at $1 35, and 1000 Davidson at 98c. After call, 400 shares Davidson brought $1.

**Lead Stocks.**—Walkill was held to-day at 74c.

**Petroleum Stocks**—Show a decline during the week.

| | March 1. | | March 8. | |
|---|---|---|---|---|
| | Offered. | Asked. | Offered. | Asked. |
| Bennchoff Run | 2 75 | .... | 2 75 | 3 00 |
| Buchanan Farm | 15 | 20 | 15 | 22 |
| Brevoort | .... | .... | .... | .... |
| Central | 1 00 | 1 05 | 75 | 90 |
| Clinton Oil | .... | .... | .... | 2 50 |
| Excelsior | 11 | 20 | .... | 20 |
| Manhattan | .... | 20 | .... | 20 |
| N. Y. and Alleghany | .... | 4 75 | .... | 4 50 |
| Pit Hole Creek | 50 | .... | .... | 75 |
| Rynd Farm | 6 | 15 | 6 | 15 |
| Rathbone Oil Exact Co | .... | .... | .... | .... |
| United Pet. Farms | 10 | 20 | 5 | .... |
| United States | 4 00 | 4 25 | 3 75 | 4 25 |

**Coal Stocks.**—200 shares of Cumberland, Pref. sold at 30@30½c; 300 Wilkesbarre at 39c.

**Miscellaneous Stocks.**—Rutland Marble was held at $15, $10 was offered; Long Island Peat, $3.50 asked; 18 shares of Wells, Fargo & Co.'s Express sold at $58.

**Government Stocks** were quoted as follows:

| | |
|---|---|
| U. S. 6s, 1867 | — @ — |
| U. S. 6s, 1868, coupon | — @131 |
| U. S. 6s, coupons, 1881 | 109½@110 |
| U. S. 6s, 1862, coupon | 109⅜@109⅝ |
| U. S. 6s, 1864, coupon | 107 @107⅜ |
| U. S. 6s, 1865, coupon | 107¼@107⅜ |
| U. S. 6s, 1865, new | 106½@106⅝ |
| U. S. 10-40 coupon | 97⅛@ 97¾ |
| U. S. 7-30, 1st | 105⅜@105¾ |
| " 2nd | 105⅜@105½ |
| " 3rd | 105⅜@105½ |

**Foreign Exchange.**—Bills at 60 days on London are quoted at 107¼@108¼ for commercial; 108⅛@108¾ for bankers'; do. at short sight, 109⅜@109½; Paris at 60 days, 5.21¾@5.17½; do. at short sight, 5.17½@5.15; Antwerp, 5.21¼@5.18¾; Swiss, 5.21¼@5.18¾; Hamburg, 35⅞@36⅛; Amsterdam, 40⅞@41¼; Bremen, 78¼@78¾; Prussian thalers, 71¼@72¼.

**Copper.**—On Tuesday there was a moderate demand for consumption. Portage Lake went at 27@27¼c; Detroit, 27½@27¾c. On Friday market quiet; no large sales. There was an average stock on hand. Orders for consumption fair. Detroit, 27¾@28c, Portage, 27@27½c.

**Iron.**—The market for Pig was weak since last report. No. 1 Scotch, from ship, sold at $43 currency; American No. 1, $43@44. The retail market is weak, and Wm. Oothout & Co., of Cliff street, report as follows:

Swedish Iron, $162½@172½; common, $102½@107½; refined $112½@117½; band, $124¼; rods, 3-16 to ⅝, $116½@172½; scroll, ⅜ to ⅞, $142@190; horseshoe, $137½@145; hoop, ⅝ to 2, $147½@210; nail rod, 9½@10½c; ovala, ⅜ to 1½, $137½@147½.

**Steel.**—Market firm. Best Cast, 23; Extra, 24½; Round Machinery, 15; German, best, 15, 3d quality, 13.

**Tin.**—On Tuesday was nominal. Straits went at 21¼@21½c gold; Banca, 23½@24c gold; English, 21¾c gold. There were imported during the month 7,200 slabs Straits, 600 slabs Banca, and 60 tons English Tin. Stock in hand, about 26,000 slabs of Straits, and 2,800 of Banca. On Friday Banca ranged at 24c; Straits, 22c; English, 22c, all gold. Moderate demand.

**Lead.**—On Tuesday steady. Foreign quoted at 6¾@6¾ gold. The February arrival amounted to 2,700 tons. There were 2,500 tons delivered for consumption. The stock is 1,000 lbs. less than that of corresponding week in 1866. On Friday Pig was quoted at 9½c. Business light.

**Spelter.**—Silesian Spelter on Tuesday went at 6½@6¾. Stock larger than at the corresponding period of last year. On Friday Silesian was quoted at 6¼c gold; American, 10c currency. Market quiet.

**Quicksilver**—Sells in lots at 85c. and in flasks at 90c.

**Gunpowder.**—$5@5½ per keg.

**Petroleum.**—Is dull and heavy. We quote crude, 40@47 gr., in bulk, 11½c, in bbls. 16½c; refined in bond, light straw, 25c; do. do., light straw to white, 25½c; do. do., prime light straw to white, 28½c; do. do. standard white, 27½c; do. do. prime white, 28@28½c.

**Candles.**—Adamantine dull at 21½@22c.

**Salt.**—Market firm. Turk's Island, 60@65c.

## THE SLATE TRADE.

We notice more activity in the slate yards and among slaters. Prices remain unchanged at the same high figures, but it is thought that they must come down soon. Opinions differ as to the amount of trade that will be done during the coming season. Some argue a slowness in the market, and others a briskness exceeding even that of last year. Although there are large stocks on hand at the quarries, we feel assured that if prices are not too high, the demand will equal the supply.

We last week promised a "Monthly Report" for this week's issue of the JOURNAL, but the late hour at which we received our report from Messrs. Cook, Overfield & Snedeker, obliges us to defer it until next week, as we are necessarily compelled to go to press at an early hour.

**Roofing Slate.**

| | | | | | |
|---|---|---|---|---|---|
| Vermont | purple, | 1st | quality, per square | | $11 50@12 50 |
| " | " | 2d | " | " | 10 50@11 50 |
| " | green, | 1st | " | " | 12 00@13 50 |
| " | " | 2d | " | " | 11 00@12 00 |
| " | red, | 1st | " | " | 13 00@14 00 |
| " | " | 2d | " | " | 12 00@13 00 |
| Pa. bl'k & d'k blue, | | 1st | " | " | 11 00@12 00 |
| " | " | 2d | " | " | 10 00@11 00 |

PRICES DELIVERED.

| | | | | | PER SQUARE. |
|---|---|---|---|---|---|
| CHICAGO.—Vermont | purple and green, | 1st qual. | | | $14 50@15 50 |
| " | " | " | 2d | " | 13 50@14 50 |
| " | red | " | 1st | " | 15 50@16 50 |
| " | " | " | 2d | " | 14 50@15 50 |
| Penn. | black | " | 1st | " | 16 00@17 00 |
| " | " | " | 2d | " | 15 00@16 00 |

BUFFALO.—$2 or $3 lower than Chicago.
CLEVELAND.—$1 higher than Buffalo.
CINCINNATI.—50 cents higher than Cleveland.
NEW ORLEANS.—$19@20 per square.
CHARLESTON, S. C.—$15@16 per square.

## THE BOSTON SLATE MARKET

REPORTED BY A. WILBUR & CO., 112 TREMONT STREET.

**Roofing Slate.**

BOSTON, Feb. 21, 1867.

| | | | |
|---|---|---|---|
| Welsh, 1st | quality | | $12 50@13 00 |
| Penn., 1st | do | | 10 00@11 50 |
| Purple, 1st | do | | 9 50@11 00 |
| Green, 1st | do | | 9 50@11 00 |

## THE COAL TRADE.

NEW YORK, Mar. 8, 1867.

**Wholesale.**—A partial revival of trade manifested itself in the market during the past week. At this season of the year the enquiry is generally light, and this year it is unusually so, from the unsettled state into which the market has been thrown, in consequence of a surplus on hand and the recent heavy auction sales. The decline in prices at the last sale also depresses the market; but the many revolutions which have been made in the coal trade during the past few weeks have taught people not to speculate too freely on the future. There is some anxiety in relation to the coming rates of freights and tolls which have not reached us yet.

**Foreign.**—We hear of some contracts being made for gas purposes, but the market generally is very quiet. Prices remain unchanged.

**Provincial.**—The failure of the Tariff Bill to become a law has raised the hopes of those engaged in this branch of the trade. Our bituminous coal operators have now more than a fair tariff at $1.25, and we advise Congress to let the matter alone.

**Retail.**—There is little demand, and prices remain firm. The various qualities range from $8.50 to $8.

The following is the quantity of Coal shipped over the principal Roads for the Week ending Feb. 23, 1867:

| | 1866. | | 1867. | | |
|---|---|---|---|---|---|
| | WEEK. | TOTAL. | WEEK. | TOTAL. | DECR'SE. |
| Phil. & Reading R.R. | .... | 580,000 | 56,067 | 441,513 | ..... |
| Schuylkill Canal | ..... | ..... | ..... | ..... | ..... |
| Lehigh Val. R. R. | 34,474 | 357,543 | 33,019 | 252,194 | 105,349 |
| Lehigh Canal | ..... | ..... | ..... | ..... | ..... |
| Del & Hudson | ..... | ..... | ..... | ..... | ..... |
| Scranton North | 5,337 | 54,270 | 8,023 | 53,883 | 387 |
| Scranton South | 15,833 | 123,487 | 26,033 | 183,910 | 59,423 |
| Penn'a. Coal Co. Rail | ..... | 66,317 | 17,093 | 56,934 | 9,383 |
| Wyoming North | ..... | ..... | ..... | ..... | ..... |
| Wyoming South | ..... | ..... | ..... | ..... | ..... |
| Shamokin | 5,586 | 48,001 | 5,683 | 44,094 | 3,907 |
| Trevorton | 857 | 5,659 | 766 | 3,866 | 1,793 |
| Short Mountain | 852 | 4,345 | 570 | 3,499 | 896 |
| L. V. Co | 168 | 1,479 | 612 | 3,598 | 2,119 |
| Broad Top | 309 | 24,704 | 3,520 | 26,826 | 2,122 |
| Williamsto'n | ..... | 21,232 | 857 | 4,824 | ..... |
| Total | ..... | 1,265,805 | 72,303 | 1075,125 | ..... |
| Cor'ng time last year | ..... | 1,075,125 | ..... | ..... | ..... |
| Decrease | ..... | 227,678 | ..... | ..... | ..... |

**Lehigh and Mahanoy Coal Trade,**

For week ending March 2, 1867.

| NAMES OF SHIPPERS. | WEEK. | TOTAL. |
|---|---|---|
| Trenton Coal Co | ..... | 314 16 |
| Mount Etna | ..... | 43 04 |
| Mahanoy Coal Co | ..... | ..... |
| Delano Colliery | 1,384 12 | 12,926 09 |
| Glendon Coal Co | 796 15 | 2,045 19 |
| Rathburn, Stearns & Co | 965 18 | 7,265 01 |
| E. S. Silliman | 2,380 15 | 21,551 07 |
| McNeal Coal & Iron Co | 1,739 12 | 8,545 16 |
| Knickerbocker Coal Co | 1,267 17 | 10,426 08 |
| Thomas Coal Co | 140 08 | 2,911 10 |
| Williams & Herring | 296 19 | 2,116 03 |
| Other shippers | ..... | 10 02 |
| Total | 8,972 16 | 68,156 15 |
| Corresponding week last year | 6,679 01 | 54,929 02 |
| Increase | 2,293 15 | 13,227 13 |
| Decrease | ..... | ..... |

## Schuylkill Coal Trade.

BY RAILROAD, FOR WEEK ENDING MARCH 7, 1867.

| | |
|---|---|
| St. Clair | 22,673 |
| Port Carbon | 6,122 |
| Pottsville | 181 |
| Schuylkill Haven | 18,614 |
| Auburn | 849 |
| Port Clinton | 7,628 |
| Total for week | 56,067 |
| Previously this year | 385,446 |
| Total | 441,513 |

## Cumberland Coal Trade.

From the "Civilian."

Statement of coal transported over Cumberland and Pennsylvania Railroad during the month ending Feb. 28th, 1867:

| | To B. & O. R. R., &c. | Total. |
|---|---|---|
| 1867 | 25,850 13 | 44,027 10 |
| 1866 | 22,567 00 | 49,532 00 |
| Increase | 3,283 13 | |
| Decrease | | 5,504 10 |

## Report of Coal

Transported over the Lehigh Valley Railroad, Week ending Saturday, March 2, 1867.

| Where Shipped from. | Week. Tons. cwt. | Previously Tons. cwt. | Total. Tons. cwt. |
|---|---|---|---|
| MAHANOY REGION. | | | |
| Trenton Coal Company | .... | 314 11 | 314 11 |
| Mount Etna Coal Company | .... | 58 07 | 58 07 |
| Mahanoy | .... | .... | .... |
| Delano | 1,582 07 | 11,252 13 | 12,835 00 |
| Glendon Coal Company | 939 09 | 1,115 10 | 2,045 19 |
| Rathbun, Stearns & Co. | 938 11 | 6,340 09 | 7,279 00 |
| E. S. Silliman | 2,481 05 | 18,851 01 | 21,332 06 |
| McNeal Company | 1,757 17 | 6,757 07 | 8,515 04 |
| Knickerbocker | 1,522 03 | 8,665 03 | 10,187 06 |
| Thomas Coal Co. | 88 11 | 2,916 11 | 3,005 02 |
| Williams & Herring | 296 19 | 1,803 07 | 2,100 06 |
| New Boston C. Co. | .... | .... | .... |
| Shamokin Coal Company | .... | .... | .... |
| East Boston C. Co. | .... | 505 14 | 505 14 |
| Other shippers | .... | 85 02 | 85 02 |
| Total Mahanoy | 9,598 02 | 58,665 15 | 68,263 17 |
| WYOMING REGION. | | | |
| Baltimore Coal Company | 1,285 13 | 12,108 00 | 13,393 13 |
| Franklin Coal Company | 502 00 | 3,252 08 | 3,754 08 |
| Audenreid | 218 05 | 1,243 13 | 1,461 18 |
| Lehigh & Susquehannah | 595 03 | 4,136 14 | 4,731 17 |
| Germania Company | 365 05 | 4,279 08 | 4,644 13 |
| Wilkesbarre Coal and Iron Co | 3,661 10 | 14,618 09 | 18,279 19 |
| Warrior Run | 148 14 | 1,765 00 | 1,913 14 |
| Parish & Thomas | 1,081 16 | 9,556 14 | 10,638 10 |
| New Jersey | 587 08 | 3,627 17 | 4,215 05 |
| Union | 891 15 | 3,047 02 | 3,938 17 |
| Wyoming Coal & Trans. Co. | 639 06 | 7,020 13 | 7,659 19 |
| New Port C. Co. | .... | .... | .... |
| Morris and Essex Mutual | 60 10 | 2,316 03 | 2,376 13 |
| Consumers | .... | .... | .... |
| Everhart C. Co. | .... | .... | .... |
| Plymouth C. Co. | .... | .... | .... |
| Hillman & Son | 206 05 | 2,282 09 | 2,483 14 |
| Bowkley, Price & Co. | 143 02 | 428 16 | 571 18 |
| T. F. Hunt & Co. | 58 06 | 55 00 | 113 06 |
| Other Shippers | .... | .... | .... |
| Total Wyoming | 10,444 18 | 69,738 06 | 80,183 04 |
| HAZLETON REGION. | | | |
| Central Coal Company | .... | .... | .... |
| Ashburton Coal Company | .... | .... | .... |
| Mount Pleasant | 57 15 | 284 13 | 342 08 |
| Hazleton | .... | 1,625 18 | 1,625 18 |
| East Sugar Loaf | .... | 6,441 11 | 6,441 11 |
| Woodside Company | .... | .... | .... |
| A. Pardee, Jr., Bro. & Co. | .... | .... | .... |
| Stout Coal Company | .... | 548 10 | 548 10 |
| Harleigh | .... | 415 18 | 415 18 |
| Ebervale Coal Company | .... | 1,630 01 | 1,630 01 |
| Jeddo (G. B. M. & Co.) | .... | 2,348 04 | 2,348 04 |
| Jeddo C. Co. | .... | .... | .... |
| Highland Coal Company | .... | .... | .... |
| Cross Creek | .... | 929 18 | 929 18 |
| Council Ridge | .... | 2,755 05 | 2,755 05 |
| Buck Mountain | .... | 603 02 | 603 02 |
| Other Shippers | .... | .... | .... |
| Total Hazleton | 57 15 | 17,583 00 | 17,640 15 |
| B. M. REGION. | | | |
| New York & Lehigh | 2,637 05 | 17,745 13 | 20,382 18 |
| Honey Brook Coal Company | 3,597 03 | 26,368 05 | 29,965 08 |
| Ger Pa Coal Company | 671 08 | 7,207 16 | 7,879 04 |
| Spring Mountain | 3,066 00 | 8,982 19 | 12,048 19 |
| Coleraine | 2,863 17 | 12,160 16 | 15,024 13 |
| B. Meadow, (D. W.) | .... | 58 06 | 58 06 |
| John Connery | 83 07 | 630 11 | 713 18 |
| Lehigh Zinc Company | .... | .... | .... |
| Other Shippers | .... | 33 00 | 33 00 |
| Total B. M. Region | 12,919 00 | 73,187 06 | 86,106 06 |
| Total Hazleton | 57 15 | 17,583 00 | 17,640 15 |
| Total Wyoming | 10,444 18 | 69,738 06 | 80,183 04 |
| Total Mahanoy | 9,598 02 | 58,665 16 | 68,263 17 |
| Total | 33,019 15 | 219,174 07 | 252,194 02 |
| Cor. week last year | 34,474 08 | 323,068 17 | 357,543 05 |
| Increase | .... | .... | .... |
| Decrease | 1,454 13 | 103,894 10 | 105,349 03 |
| Coal delivered at M. Chunk and forwarded by rail | 33,019 15 | 219,174 07 | 252,194 02 |
| Coal delivered on line of P Haven and W. Haven R. R. | 20 11 | 120 12 | 141 03 |
| At Junction, for shipment by canal | .... | 89 06 | 89 06 |
| At Mauch Chunk | .... | 75 11 | 75 11 |
| At Mauch Chunk for shipment by canal | .... | .... | .... |
| Grand Total | 33,040 06 | 219,459 16 | 252,500 02 |
| Cor. week last year | 34,474 08 | 323,068 17 | 357,543 05 |
| Increase | .... | .... | .... |
| Decrease | 1,432 02 | 103,609 01 | 105,043 03 |

## Prices of Coal by the Cargo.

[CORRECTED WEEKLY.]

### At New York, March 8, 1867.

| | | |
|---|---|---|
| Schuylkill Red Ash by Boat Load | | $6 50@$7 00 |
| " Chestnut, " " | 5 00 | 5 25 |
| " White Ash Lump | 6 00 | 6 25 |
| " Steamboat | 6 00 | 6 25 |
| " Broken | 5 00 | 7 00 |
| " Egg | 6 50 | 7 00 |
| " Stove | 6 50 | 7 00 |
| " Chestnut | 4 75 | 5 50 |
| Lehigh White Ash Lump | 6 50 | 7 00 |
| " Broken | 6 50 | .... |
| " Egg | 6 25 | .... |
| " Stove | 6 75 | .... |
| " Chestnut | 5 50 | .... |
| Despard Gas Coal | 10 00 | .... |
| Westmoreland Gas Coal | 10 00 | .. |
| Blossburg & Fall Creek | 7 25 | 7 40 |

### At Philadelphia, March 8, 1867.

| | | |
|---|---|---|
| Schuylkill Red Ash Prepared | | $5 50@$6 00 |
| " Chestnut | 4 00 | .. .. |
| " White Ash Lump and Steamboat | 5 25 | .. .. |
| " Broken | 5 00 | 5 25 |
| " Egg and Stove | 5 25 | 5 50 |
| " Chestnut | 4 00 | 4 25 |
| Locust Mt. Lump. and Steamboat | 5 25 | 5 50 |
| " Broken | 5 25 | .. .. |
| " Prepared | 5 50 | .. .. |
| " Chestnut | 4 25 | .. .. |
| Lorberry Coal | 5 75 | .. .. |
| Shamokin | 5 75 | .. .. |
| Franklin, (Lykens Valley) | 5 50 | 5 75 |
| Broad Top | 5 50 | .. .. |

### Scranton Coal at Elizabethport, March 8, 1867.

| | |
|---|---|
| Lump | $4 50@— — |
| Steamer | 5 00 — — |
| Grate | 5 50 — — |
| Egg | 5 25 — — |
| Stove | 5 75 — — |
| Chestnut | 4 50 — — |

### Prices for Pittston Coal at Newburgh, March 8, 1867.

| | |
|---|---|
| Lump, per ton of 2240 lbs | $5 20 .. .. |
| Steamer, " " " | 5 20 .. .. |
| Grate " " " | 5 35 .. .. |
| Egg " " " | 5 45 .. .. |
| Stove " " " | 5 70 .. .. |
| Chestnut " " | 4 40 .. .. |

70 cents additional to New York.

### Lackawanna at New York, Mar h 8, 1867.

| | |
|---|---|
| Lump | @.. .. |
| Steamer | @.. .. |
| Grate | 6 50 @.. .. |
| Egg | @.. .. |
| Stove | 6 50 @.. .. |
| Chestnut | @.. .. |

### Lehigh Coal at Elizabethport, March 8, 1867.

| | |
|---|---|
| Lump | 6 75@$7 00 |
| Steamboat and Broken | 6 25 — — |
| Egg | 6 25 — — |
| Chestnut | 5 00 5 25 |
| Stove | 7 00 |

### George's Creek and Cumberland Coal.

| | |
|---|---|
| Run of mine, f. o. b. at Locust Point | $5 60@ 5 75 |
| At Georgetown | 5 50 .. .. |

### At Baltimore, March 8, 1867.

| | |
|---|---|
| Wilkesbarre & Pittston W. A., wholesale | $7 00@$7 25 |
| " " " retail | 7 75 8 00 |
| Lykens Valley & Sunbury R. A., wholesale | 7 00 7 25 |
| " " " retail | 7 75 8 00 |

Duty Bituminous $1.25. Other kinds 40 cents per ton

(From the Mercantile Gazette.)

### At San Francisco, Feb. 5, 1867.

| | |
|---|---|
| Australian | $....@ 9 50 |
| Do Wallsend | .... 10 00 |
| Pittston, ton | 17 00 .. .. |
| Lehigh | 18 00 .. .. |
| Cumberland, cks | .... 25 00 |
| do bulk | 22 00 .. .. |
| Scranton | 17 00 18 00 |
| Liverpool | .. .. .. .. |
| Scotch | .. .. .. .. |
| West Hartly | 12 00 .. .. |
| Vancouver Island | 11 00 .. .. |
| Bellingham Bay | 10 00 .. .. |
| California | 6 00 8 00 |

## Prices of Foreign Coals.

[REPORTED FOR THE JOURNAL OF MINING.]

BY H. L. PARMELE & BRO., 32 Pine street, N. Y.

Duty $1.25 per ton.

| | |
|---|---|
| Liverpool Gas Caking | $10 50 |
| " " Cannel | 15 00 |
| " House " | 18 00 |
| " " Orrel | 16 00 |

Per ton 2240 lbs.

PRICES FROM YARD:

| | |
|---|---|
| Liverpool Orrell, screened | 20 00 |
| " Cannel, " | 22 00 |

per ton 2000 lbs. delivered.

## Prices of Provincial Coals.

[REPORTED FOR THE JOURNAL OF MINING.]

BY LOUIS J. BELLONI, JR., 43 Pine street, N. Y.

Duty $1.25 per ton.

| | | |
|---|---|---|
| Block House (on board) | $1 75 | gold |
| Gownie " | 1 75 | " |
| Lingan " | 1 75 | " |
| Sidney " | 2 28 | " |
| Pictou " | 2 25 | " |
| Glace Bay " | 1 75 | " |
| International Co.'s " | 1 75 | " |
| Slack Coal " | 75 | " |

## Coal Freights.

### From Newburgh.

| | | | |
|---|---|---|---|
| Albany | 55@.. .. | Norwalk | 1 20@.. .. |
| Barrytown | 40@.. .. | Norwick | 1 45@.. .. |
| Boston | 2 00@.. .. | Nyack | 50@.. .. |
| Bridgeport | 1 25@.. .. | Pawtucket | 1 70@.. .. |
| Bristol | 1 45@.. .. | Peckskill | 40@.. .. |
| Catskill | 40@.. .. | Poughkeepsie | 25@.. .. |
| Cold Spring | 30@.. .. | Providence | 1 50@.. .. |
| Coeymans | 50@.. .. | Rhinebeck | 30@.. .. |
| Coxseckie | 45@.. .. | Saugerties | 40@.. .. |
| Dighton | 1 50@.. .. | Sing Sing | 50@.. .. |
| Fall River | 1 45@.. .. | Stamford | 1 25@.. .. |
| Fishkill Landing | 20@.. .. | Stonington | 1 35@.. .. |
| Greenbush | 55@.. .. | Stuyvesant | 45@.. .. |
| Haverstraw | 45@.. .. | Tarrytown | 50@.. .. |
| Hudson | 40@.. .. | Troy | 60@.. .. |
| Mystic | 1 35@.. .. | Warren | 1 50@.. .. |
| New Haven | 1 25@.. .. | West Point | 30@.. .. |
| New London | 1 35@.. .. | West Troy | 60@.. .. |
| Newport | 1 45@.. .. | Yonkers | 55@.. .. |
| New York | 70@.. .. | | |

### From Georgetown or Alexandria.

| | | | |
|---|---|---|---|
| To Philadelphia | $2 50 — — | Boston | 3 50 3 75 |
| New York | 3 25 3 50 | | |

### From Elizabethport.

| | | | |
|---|---|---|---|
| Albany | $1 00@— — | New London | 1 30@— — |
| Boston | 2 00 — — | Newport | 1 50 — — |
| Bridgeport | 1 20 — — | New York | 70 — — |
| Fall River | 1 50 — — | Norwalk | 1 20 — — |
| Hartford | 1 75 — — | Norwich | 1 40 — — |
| Hudson | 1 00 — — | Pawtucket | 1 75 — — |
| Lynn | — — — | Portland | 2 00 — — |
| Middletown | 1 50 — — | Portsmouth | 2 15 — — |
| New Bedford | 1 50 — — | Providence | 1 50 — — |
| Newburyport | 2 25 — — | Salem | 2 00 — — |
| New Haven | 1 00 — — | Taunton | 1 40 — |

### From Baltimore.

| | | | |
|---|---|---|---|
| To Philadelphia | $2 50@— — | Boston | 3 75@— — |
| New York | 2 25 — — | | |

### By Railroad.

| | |
|---|---|
| Transportation from Schuylkill Haven to Pt. Richmond | $2 25 |
| Freight from Pt. Richmond to New York | 1 60 |
| Total | $3 85 |

From Port Carbon 8 cents per ton more.

### Freights on Coal to Elizabethport.

| | |
|---|---|
| L. V. R. R. from Mauch Chunk to Easton | $1 15 |
| C. R. R. of N. J., Easton to Elizabethport | 1 66 |
| | 2 85 |
| Shipping expenses at Elizabethport | 30 |
| Total | $3 11 |

### Provincial Freights.

| | |
|---|---|
| Sydney to N. Y. | $4 50 |
| Lingan | 4 50 |
| Cow Bay | 4 50 |
| Big Glace Bay | 4 50 |
| Little " | 4 25 |

### Foreign Freights.

| | |
|---|---|
| New Castle and Ports on Tyne | 19£@ keel |
| Liverpool | 15s.@ 20s |

## SAN FRANCISCO STOCK MARKET.

### Latest by Telegraph.—March 2.

| Name. | Bid per foot. | Name. | Bid per foot. |
|---|---|---|---|
| Gould & Curry | 475 | Crown Point | 850 |
| Savage | 1925 | Yellow Jacket | 715 |
| Chollar-Potasi | 240 | Belcher | 110 |
| Ophir | 210 | Alpha | .. |
| Hale and Norcross | 3000 | Imperial per share | 175 |
| Cal. Steam Navigation Co. | 63½ | Cal. State Telegraph Co | 32 |

## WEEKLY COAL TRADE CIRCULAR.

NEW YORK, March 8, 1867.

The coal trade at wholesale is still inactive, whilst at retail it moves along with a fair degree of activity, and stocks are being depleted. It is expected by the first of April stocks will be quite thoroughly exhausted. Prices are low. Coal is selling afloat in New York to-day at $6 per ton, whilst *flour* is selling to the men who produce the coal at $16 per barrel. This unnatural disproportion of values cannot long continue to exist. The truth is, flour is too high and coal is *too low*. Buyers who may hesitate about purchasing coal at its current quotations may have occasion before the season closes to regret their extreme caution. P.

# Patent Claims.

### Interesting to Miners, Millmen, Metallugists, Oil-Men and Others.

The following claims have recently been issued from the United States Patent Office:

**62,327.—MACHINE FOR BENDING METALS.**—Samuel Hall, N. Y.

First, I claim the box frame BB, constructed substantially as shown for the purpose set forth.

Second. In combination with the bending roller, held and adjusted substantially as described, I claim the rollers X, when the same shall be combined, constructed and operated substantially as shown for the purposes set forth.

Third. In combination with the same, the use of the sliding boxes constructed as shown for the purposes specified.

**62,360.—STEAM PUMP.**—Joseph B. Pottmeyer, assignor to himself and Nicholas Winter, Pittsburgh, Pa.

1st. I claim the arrangement of the plug valve, F, with its steam passages, c and c', and its exhaust channel, d, substantially as described and for the purpose as set forth.

2d. The arrangement of the valve, V, and the auxiliary valve, F, as described and for the purpose set forth.

3d. The arrangement of the throttle, m, with reference to the steam chest, E, and valve, H, in the manner and for the purpose as set forth.

**62,397.—COMBINATION OF AIR AND STEAM JETS TO PROMOTE COMBUSTION.**—George M. Copeland, Brooklyn, N. Y.

1st. I claim the combination of an air or steam jet or jets with each other, and their introduction into a chimney, smoke flue, or other passage way, substantially as herein specified and for the purpose set forth.

2d. The combination of an air pipe, D, single or branched, and steam pipe or pipes, F, with each other, and with the smoke flue chimney or other passage way in which they are placed, substantially as herein described and for the purpose set forth.

**62,407.—FORGING APPARATUS.**—Alfred J. Grainger, Wilmington, Ill.

I claim, 1st. The connecting rod, g, crank shaft, Ff, and counter balance, I, in combination with the hammer, A B, substantially in the manner and for the purpose set forth.

2d. The hammer, A, spring-jointed helve, B'B, connecting rod, g, and crank shaft, Ff, substantially as and for the purpose described.

# Special Scientific Brevities.

☞ **M. Berthelot, the great French chemist, has** thrown out some suggestions which commend themselves to those who are anxious to find a substitute for coal. M. Berthelot thinks that carbonic acid, penetrating the strata which compose the earth, and coming into contact with free alkaline metals,

would form a series of acetylurets, and that these, coming into contact with watery vapor and hydrogen, would give rise to tars and bitumens.

☞ **Professor Benjamin Pierce has been appointed** the successor of Professor Bache in the superintendency of the Coast Survey. He is among the first of living mathematicians, and for many years his services at Harvard College have been of inestimable value.

☞ **The curious fact has been observed by means** of the microscope, that perforations made by the electric spark are uniformly pentagonal in form.

☞ **To ascertain when an article is gilt or made of** a gold-colored alloy, Weber makes use of a solution of bichloride of copper, which makes a brown spot on an alloy, but produces no effect on a surface of gold.

## All Sorts.

☞ ODE TO DUNKELLIN.

Dunkellin, Dunkellin,
There's really no tellin'
What mischief you've managed to do,
For the cabinet's out,
And I fear there's no doubt
We'll be ruled by the Derbyite crew!

☞ **"Dear me, how fluidly he talks!" said Mrs. Partington,** recently, at a temperance meeting; "I am always rejoiced when he mounts the nostril, for his eloquence warms in every cartridge of my body."

☞ **An Irish washerwoman in Calaveras county,** Cal., who was obliged to take a share in a newly discovered mine in payment for services her employer being unable to pay in money, now derives an income of $10,000 a year from it.

☞ **A man who was once on a journey, said he never** liked to see the tables covered with books and newspapers where he stopped at night, "for," said he, "I can never find any whiskey at such places."

☞ **An exchange says that Mr. Morrissey visited the** Capitol a few days since, and on noticing the Speaker's desk, he inquired whether that was "where the referee sat."

☞ **A charity scholar, under examination in the** Psalms, being asked, "What is the pestilence that walketh in darkness?" replied, "Please, sir, bedbugs!"

☞ **A newly born Ottowa child has but one eye, and** that is in the middle of the forehead, an inch and a half above the nose. It had better be born over again.

☞ **The Bridgeport *Standard* tells a story of a keeper** of a toll bridge, who refused a silver quarter in payment for toll, and insisted on having good money.

☞ **Ronalds is a great skater in Louisville, Ky.** He has no legs, and uses three skates. He sits upon one, and uses the other two with his hands.

☞ **Onward-Opposition-to-Presbyterianism Hen**drickson is the name of the son of a Hard-shell Baptist preacher in West Ely, Marion county, Missouri.

☞ **Good men have the fewest fears. He has but** one who fears to do wrong. He has a thousand who has overcome that one.

☞ **Happy is he who has his quiver full of daugh**ters, but happier far is he if each one in the quiver meets her proper bow.

☞ **An Irish girl, who had been at a play on Sun**day, was accosted by the priest: "Good morning, daughter of the devil." She meekly replied, "Good morning, father!"

☞ **Agassiz tells us about a sort of fish in Brazil** which can climb trees. They are probably peculiar to the tropical climb.

☞ **Trying to live on the reputashun ov a ded grand**father iz just about as enterprising as trying to hatch out rotten eggs under a tin weather-cock.

☞ **The movement in aid of immigration to the** Southern States, especially South Carolina and Georgia, is becoming quite earnest.

☞ **A petrified human hand was lately found in** red sandstone at Memphis, Tennessee, in a perfect state of preservation.

☞ **Gold is the only idol that is worshipped in all** lands without a temple, and by all sects without hypocrisy.

☞ **Why are fowls the most economical stock for** farmers? Because for every grain of corn they give a peck.

☞ **The object of Carlyle's anticipated visit to this** country is to learn to speak and write the English language.

☞ **Laugh at no man for his pug nose; you can** never tell what may turn up.

## New Mining Invention.

The Stockton *Independent* gives the following account of a recent invention: E. R. Chapin, of Sonora, has recently invented a very ingenious contrivance for saving gold lost from quartz mills, and which he terms a "Concentrator and Separator." The model which he has determined to send on to Washington, in hopes of getting out a patent for his invention, could be easily placed in a person's coat pocket. It is entirely different every way from every separator or concentrator that we have seen used by quartz miners. A shallow pan, called the separator, elevated an inch above the concentrator, first receives the water, sediment, quicksilver and gold escaping from the mill above. The bottom of the separator being deeper than the sides or mouth where the water flows over, the quicksilver and gold naturally settles down, while the light sand and sulphurets flow over with the water into the concentrator, which looks somewhat in shape like the shallow top of a soup tureen. Small holes are perforated in the bottom of this concentrator, through which the sulphurets pass into small pans beneath, while everything else flows over the top into conductors which convey it away. The whole machine is suspended on four stout wires, each fastened at the bottom in a strong framework. Diminutive cog wheels attached to a cylinder, which is kept in motion by the action of the mill above, sets the machine in motion, and gives both the separator and concentrator the same motion as that of a child's cradle when rocked gently.

## Bergue's Furnace for the Reduction of Iron Ores.

Mr. Bergue has lately introduced in France a new system for the reduction of iron ores, as well as for the refining of pig iron. It differs from the modes in use at present in the following details: 1. The fuel is brought into a space separate from that containing the ores. 2. The air necessary to combustion is forced in by means of ventilators upon the top of the fuel, so that the flame has a direction opposite to that commonly given to it. 3. The fuel is introduced without opening the fire-place to the external air. This furnace consists of a large crucible, or kettle-shaped structure, of fire-brick, surrounded by an iron armature which serves it as a support, and covered by a heavy iron-plate, cemented on on its inner side with fire-clay. This cover has two openings which admit the air pipes, leading from the fan-blowers. In the centre of the cover is another opening, which admits a tube of a round, rectangular, or polygonal shape, having its inner surface either smooth or curved. This tube may be constructed either of fire-proof material, or of metal, when it requires the circulation or water around its exterior. It has grates at its bottom, which reach about half way down the furnace, and during the operation rests upon the fuel. By means of a lever or other machinery it may be raised or lowered as may seem necessary. Its upper end communicates with the melting or reduction furnace proper, the latter being broad at the top and narrow at its bottom, as the common cupola. The tube mentioned serves as aspirator for the products of combustion coming from the lower kettle-shaped furnace, and carries them to the upper funnel-shaped part containing the ores or the pig-iron. The lower kettle-shaped part is the receptacle for the fuel, which is introduced in the following manner:—The cover contains several openings, above which fuel-boxes are placed. The size of the latter corresponds to that of the openings in the cover. At their base, resting upon the furnace-cover, they have a rim or flange, broad enough to cover the openings in the furnace top. These boxes are also supplied with tightly fitting covers, while of course they have no bottom save the flanges mentioned. For the purpose of charging the furnace with fuel these boxes are filled, their lower openings standing upon the furnace-cover, while their flanges cover the openings in the furnace-top. This done, their covers are put on and they are moved along so as to bring their lower openings over those in the furnace-cover, when their contents will drop down into the former and they may again be brought into their former position, in order to receive a new charge of fuel. If the furnace is to be started, the fuel is introduced at once through the openings mentioned, while the top or melting furnace is charged with the ore. The fuel is then kindled, the ventilators started, and the air entering through the cover pervades the fuel downward and passes through the central tube mentioned into the cupola, where it comes in contact with the ore, which melts and runs downward into the fuel chamber, occupying the lowest part of the same, whence it is withdrawn in the usual manner. A better quality of iron is claimed for this arrangement, as well as a more complete utilization of the fuel. Experience will teach how well founded these expectations are.—*Am. Artizan.*


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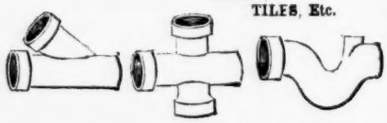

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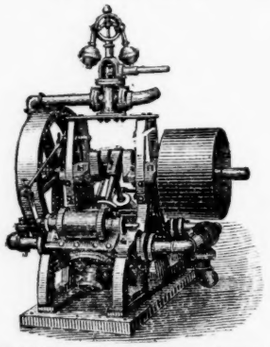

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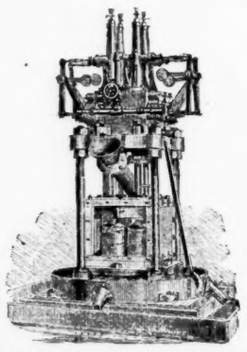

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The invention is worthy the immediate attention of all using steam boilers. RICHARD PARTINGTON,
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PROVIDENCE, R. I., Dec. 18, 1866. Vol. 2-11-qp

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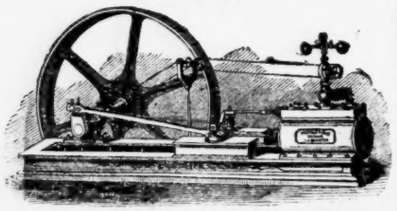

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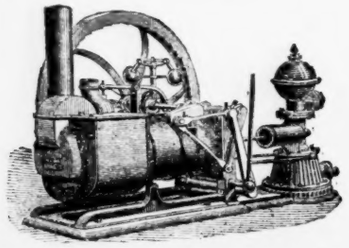

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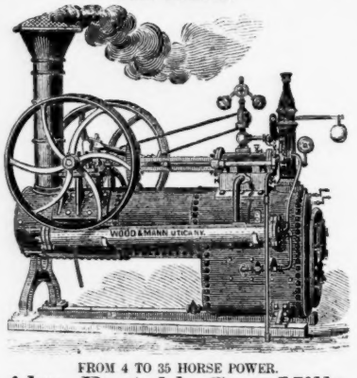


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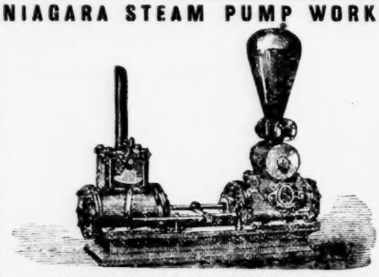

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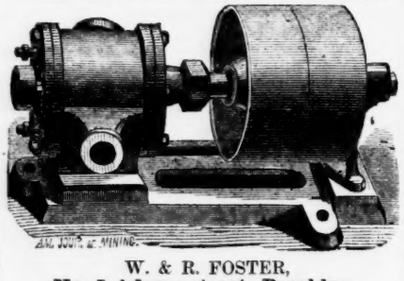


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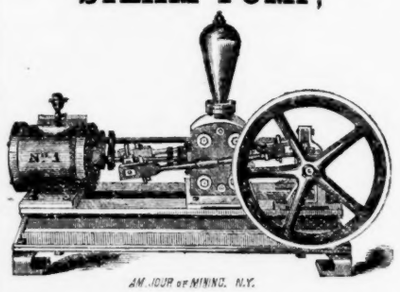


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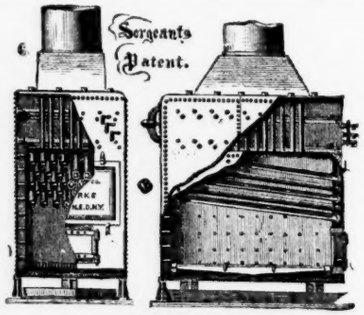


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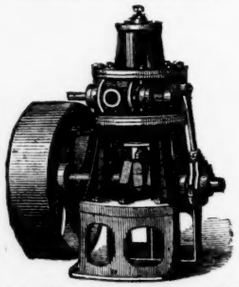

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